

May 1991

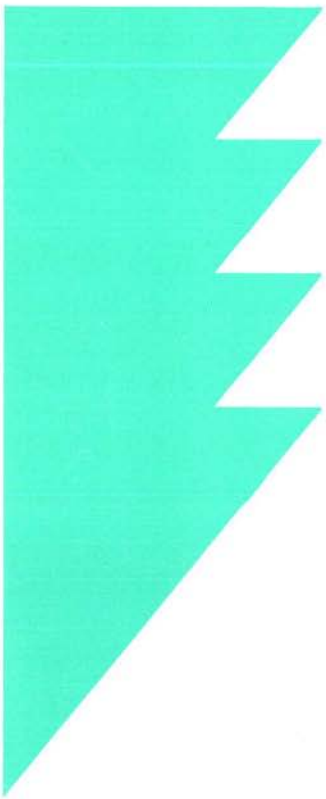
Vol. 4

Nº 8

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Archive

The Subscription Magazine for Archimedes Users



Developing RISC-OS Applications – 1

Analogue Measurement on the A3000

Setting up the PC Emulator

Using the PC Emulator – Part 9

Reviews: ArcScan III, CASA, Landmarks,
PAL Coder, Crossword Callup, WorraCAD,
Shareware 38, Carewares 5 & 7, Presenter Story,
Design Concepts' Programs and Fonts,
International Hangman, A3000 Expansion Case

Archimedes viruses galore!?

Judging by some of the ridiculous scare-mongering in certain other magazines, you would think that Archimedes viruses were an extremely serious problem. There *are* a couple of Archimedes viruses around and they *can* be a nuisance but let's not get the whole thing out of proportion. If you are swapping discs with other people and are worried about viruses, there are a number of PD inoculator and watch-dog type programs around – I'll put something on the monthly program disc.

When a magazine puts a 'benign virus' on one of its program discs to 'make a point', it does make you wonder... It would be interesting to know how the Computer Crimes Unit would view it (see page 19) as it is now against the law to create or knowingly distribute a computer virus!

A540's in stock

There is a distinct dearth of A540's at the moment – well, that's been true virtually ever since they first came on the market! We usually manage to get hold of about one or sometimes two a month, so they go out almost as soon as they come into stock. However, we have managed to get a couple of extra A540's from one of our distributors and we haven't, at the time of writing, got buyers for either of them. If you are interested, you will need to get on the phone to us fairly quickly.

Autoloaders for sale

After considerable delay in getting them from the States, the Xpress autoloaders are now becoming more freely available. If you are copying large numbers of Archimedes discs (or are paying someone else to copy them) it's worth thinking about getting an autoloader. It's just an external drive which attaches to your Archimedes and has a serial cable down which you send messages to tell the mechanism to load a new disc out of a 50-disc input hopper or throw the disc out into one of two output bins (e.g. accept and reject). They cost £2750 (inc VAT) which may sound a lot but, believe me, for anyone copying the numbers of discs that we are, they are worth every penny. If you want more details, let us know.

That's it for now. Happy reading!



Government Health Warning – Reading this could seriously affect your spiritual health.

Did you listen to "Any questions" on Radio Four when they had the question, "Do you think that Christianity is relevant today?" (It was linked to a question about George Carey, the new Archbishop.) The answer from all four panellists was basically, "We need a moral code to live by. Christianity gives one, therefore it's OK." What a load of rubbish! If I were not a Christian, my response would be, "Why should we stick to Christian morality? Says who? Why is that any more of an authority than any other religion or indeed any other philosophy – like humanism for example?" As a Christian, my response is, "How dare they try to pinch the moral code and ignore the Person who gave it!"

If you don't believe that Christianity is actually true, you cannot claim the Christian moral code as any kind of authority. In my case, I believe that what Jesus said and did shows us the truth about God and allows us to know God personally and *therefore* I try to run this business in the way I think that God, whom I know and love, wants me to i.e. on Christian moral principles. I accept that I may be wrong in my basic assumption that Jesus is the truth about God... but at least it's a logically consistent position!

Archive

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Products Available

- **Arachnid** is a real-time programming environment from Paul Fray Ltd (based on Spider for the BBC B). For £100 +VAT, you get a detailed manual with tutorial section plus a program which can be used to respond to external events such as switch closures, perform various timing tasks and control external events via whatever I/O ports you have installed on your computer. (Paul Fray Ltd's phone number was wrongly quoted last month – it should be 0223-441134.)
- **Conform** – NorthWest SEMERC have produced a concept keyboard overlay generator. The main criterion of the software writers was that the package should be easy to use so it should be ideal in the primary sector of education. The price is £15 +VAT.
- **Freddy Teddy's Adventure** – Topologika's Freddy Teddy is off on his adventures again. After his first trips released under the program name "Freddy Teddy", he is off again under the title, "Freddy Teddy's Adventure". For £19.95 +VAT (£21 through Archive) you get a storybook and a disc which provide counting games and puzzles that encourage logical thought and help children gain confidence in using their Archimedes computer.
- **My World** – This is an application produced by NorthWest SEMERC which allows children to manipulate Draw files. It is said to be "unlike any educational software on the market". It costs £15 +VAT and comes with 20 example files to get users started. Simple Stuff Sampler (£7.50 + VAT) is also available and provides a further 17 screens to be used with My World.
- **Primary WP** – NorthWest SEMERC have produced a RISC-OS word-processor called Phases#2 aimed at primary schools. It comes with its own outline fonts, various sample documents, a keystrip and a double-ended manual – one end starts as the User Guide and the other end as Starting to Use Phases#2 and the two books meet in the middle. The price is £15 + £2.50 p&p plus VAT. Also available at £7.50 +VAT each are two Phases Support packs – The Very Hungry Caterpillar and Phases Borders Disc 1.
- **Shareware disc N°39** – this contains a number of items of educational interest and also some utilities: Algorithms (sorts, pattern matching, routing, etc), A-level Chemistry tutorial, Draw files summarising the RISC-OS applications, Compound interest and RPI calculators, BASIC FN's to help plot graph axes, BASIC V mathematical FN's, Depth of field and flash calculators for photography, Desktop backdrop, Disc copier (updated from S/w 2), Compacted screen sequence creator, Desktop file utilities, Converter from IBM WFN to outline fonts, Floating point calculator, SoundTracker -> Rhapsody converter, Desktop !Help provider.
- **Speech!** – Superior Software have given the Archimedes a voice called Speech! for just £19.95 (£19 through Archive). It uses the standard sound interface leaving the computer free to do other things. No extra hardware is needed. You can vary the pitch, speed, volume and voice either directly or through your own programs. You can even sing the words over a 4 octave range! It also comes with a program that will allow you to change the dictionary yourself.
- **Speech!!** – DT-Talk is an allophone based speech synthesizer which can synthesise any word in the English language. It integrates with the computer's own sound system and can therefore be used alongside other sounds and music. It is available for £15 +VAT from Atomwide.
- **Speech!!!** – A third speech system is also now available from PEP Associates. This again links in with the sound system and can be programmed by the user. It uses phonemes to generate words (don't ask me if that's the same as being allophone based!) and is available for £25. It is called PEP Associates SpeechSystem but why they didn't call it PEP Talk, I'll never know! They have given us a public domain demonstration which we have put on this month's program disc.
(All three speech systems have been sent to a reviewer, so watch (or listen to) this space..)
- **Spreadsheet MkV** – Contex Computing have released a low-priced RISC-OS compatible spreadsheet for just £15 +VAT. This is an initial

price – early purchasers will get a printed manual, while stocks last. Thereafter, it will be available as a disc file.

Review software received...

We have received review copies of the following software and hardware: Conform, MyWorld +

Simple Stuff Sampler, Phases#2 + Borders + The Very Hungry Caterpillar, Carewares 4 and 6, !Voice-Builder from MJD Software, Freddy Teddy's Adventure, Avisoft Fast Array Sorts, PRES A3000 5¼" interface & software, Viewpoints from Sherston Software. **A**

Small Ads

• **30 colour palettes** – send £4, or £3 + formatted disc, to R C Melling, 80 Severn Road, Culcheth, Warrington WA3 5EB.

• **A3000**, 2Mbyte, improved sound output. Will offer 2 month guarantee. £550 o.n.o. Machine in Reading, but call Ian on Romsey (0794) 22086.

• **A310, 20M HD** approx 10M software inc PC emulator & PipeDream, Philips monitor, CC podule, spare drive, books etc. (mouse sometimes sticks) £850. (Sale due to return to DOS. Sob!) P A Hughes, 081-840-5650 after 6 p.m.

• **A310M base**, 2-slot bp, software £500. 40M internal hard disk £250. Phone 0895-30826.

• **A310M**, 4M upgrade, 40M drive, 5¼" drive, CC ROM/RAM podule lots of software £999. Phone Gordon Barker on 021-705-1611.

• **Acorn DTP** £40, Genesis £25, PC Emulator (DR-DOS) £45, FWPlus II £45. All unopened. Phone Peter on 0923-675590.

• **Apocalypse** £10; Interdictor (1) £10; Conqueror £8; CIS Minipack 5 (Fish, Fireball 2, Pon) £16; Render Bender £35. Ring Mark on 0285-654346 evenings.

• **Apocalypse** £10; Arcade Soccer £8; Chocks Away £9; Conqueror £3; Corruption £3; Drop Ship £8; E-Type £8; Holed Out £8; Nevryon £8; Olympics £8; Pysanki £8; Quazer £3; U.I.M. £10. Ring John on 081-898-0447.

• **!DeskAAsm** – Desktop front end for Acorn Assembler. Send £5 to Darren Sillett, 43 Kingfisher Walk, Ash, Aldershot GU12 6RF.

• **Digitisation** – Artwork or VHS tape images digitised. Call Ned Abel on 0292-2249. Prices by arrangement.

• **Price reduction** – Future Software are now offering a compilation of their games Mindwarp

and Cobra for £5. Contact R Millican, Future Software, 10 Stokesay, Bidston, Birkenhead, L43 7PV.

• **SigmaSheet**, very recent version (2.01) £25 o.n.o. Phone Stuart Bell on 0273-304825.

• **Taxan 770 Plus** low radiation multisync monitor (never used) £295 or consider exchange for HP Deskjet. Phone Mick Cattell on 0742-745209.

• **Wanted RISC-OS PRM**. In exchange, I will give the following: Desktop Games, Corruption, Graphic Writer, PC Emulator, Max Gammon and Quazer. Phone Frode Myklebust on 010-47-71-65209 (Norway).

• **Z88** with 128K RAM, charger, mains adaptor, Archimedes link, utils. Unused present. £200. Epson RX little used £100. Phone Andy on 0278-751-317 (Somerset).

Charity Sales – The following items are available for sale in aid of charity. PLEASE do not just send money – ring us on 0603-766592 to check if the items are still available. Thank you.

(If you have unwanted software or hardware for Archimedes computers, please send it in to the Archive office. If you have larger items where post would be expensive, just send us details of the item(s) and how the purchaser can get hold of them.)

User Guides £2 + £3 postage, A3000 1M upgrade £45, Interdictor 1 £6, Superior Golf £8, Trivial Pursuit £8, White Magic £8, Battle Tank £6, Alien Invasion £6, Terramex £7, Repton £6, Missile Control £4, Orion £6, ArcWriter £4, Conqueror £6, Logistix £30, Teletext adaptor £20, Acorn I/O podule £45, Serial Interface/buffer for Epson FX80 £15. **A**



Ace Computing



RISC OS Euclid is the best multi-tasking 3D graphics and animation system for the Archimedes. It is effectively a 3D version of Draw.

Mogul makes full use of **Euclid**'s unique hierarchical data structure to generate animations of 3D objects with articulated motion and simultaneous camera motion.

ArcLight is a multi-tasking ray-tracer which will generate a realistic **Euclid** picture, or a complete **Mogul** film, while you are free to get on with other work.



Tween produces films from Draw files. It uses techniques similar to **Mogul** and generates a film by calculating intermediate frames from a set of key positions.

Splice allows you to edit films produced by **Mogul** or **Tween**. You can even produce hand-drawn cartoons by converting sprites from any source.

Such is the enthusiasm for **Euclid** there is a user group called **Elements**, now in its second year, which provides a quarterly disk containing hints, tips, animations and user pictures.

ArcLight £50

Euclid £70

Mogul £20

Splice £30

Tween £30
(inc.VAT)

Ace Computing
27 Victoria Road,
Cambridge,
CB4 3BW.

Tel: (0223) 322559

Fax: (0223) 69180



Hints and Tips

• **ARM code errata** – The following is for all those who have an unshakable faith in the integrity of Acorn's code:

The code given to return from SWI "OS_BreakPt" on page 736 of the PRMs is incorrect. The following works.

```
.backtobreak%
    SWI "OS_EnterOS"
    ADR R14,breaksave
    LDMIA R14,{R0-R14}^
    LDR R14,[R14,#15*4]
    ADD R14,R14,#4
    MOVS PC,R14
```

The code given on page 231 of the old BASIC User Guide (under CALL) is incorrect. For example, to use MATCH, the line tokenisation routine, the following code will work. This has been corrected in the new BASIC User Guide.

```
.tokenise
    STMFD R13!,{R14}
    ADD R0,R14,#18*4
    ADR R1,source
    ADR R2,dest
    MOV R3,#1
    MOV R4,#0
    ADR R14,cominghome
    MOV PC,R0
.cominghome
    LDMFD R13!,{PC}
.source
    EQU$ STRING$(90,CHR$(0))
    ALIGN
.dest
    EQU$ STRING$(90,CHR$(0))
    ALIGN
```

J Heher, South Africa

• **BASIC printing to a DeskJet Plus** – The April issue of Archive contained a Help!!! plea about printing from Archimedes BASIC to a DeskJet 500. I have a DeskJet Plus and have successfully printed from BASIC. For reference, my printer is normally set with the function switches 6 and 8 in bank A and 2 in bank B up, all others are down.

To print, I use the command VDU 2,1,27,1,38,1,107,1,49,1,71 (see Line Termination in Appendix 8.19 of the Owner's Manual). Here is an example of how it can be used:

```
10 REM >PrintTest
20 VDU 2,1,27,1,38,1,107,1,49,1,71
30 PRINT "TEST OF NORMAL PRINTING"
40 VDU 1,27,1,38,1,100,1,49,1,68
50 PRINT "This is underlined"
60 VDU 1,27,1,38,100,1,64
70 VDU 1,27,1,40,1,115,1,51,1,66
80 PRINT "This is BOLD printing"
90 VDU 1,27,1,40,1,115,1,48,1,66
100 VDU 1,27,1,40,1,115,1,50,1,48,1,72
110 PRINT "This is 20 PITCH"
120 VDU 1,27,1,69 :REM reset printer
130 VDU 3
140 END
```

A Kitchenside, Weybridge

• **Big memory tips** – As a footnote to my own article in last month's Archive on making best use of machines with more than 1M memory, I'd like to add one more tip. I was reminded by a review of Protext, which noted that the current version does not multi-task, that my eleventh tip might have been, "boycott non multi-tasking packages". Since, with 1M, you couldn't really multi-task two significant applications, this was not a problem. Now, it's a real pain in the neck not to be able to have several applications with simultaneously active windows, much of the power and ease-of-use of RISC-OS is being unused and it's annoying knowing that 3M of your upgrade is being wasted!

So, unless there's a really good reason such as a time-critical sound sampler or video screen grabber, I suggest that we boycott such packages. Then, software producers would have to bring them up to date and not try to palm us off with "Arthur programs with !Run and !Boot files". In an ideal world, software sellers would refuse to stock them but at least they could be marked as such, perhaps indicating their antiquity by listing them in a suitable script? Stuart Bell, Brighton.

- **C book** – I was recommended a good C book which I used on a C short course I attended: The Waite Group's "New C Primer Plus", First Edition 1990, editor Howard W Sams & Co, ISBN 0-672-22687-1. It covers ANSI C, UNIX, Microsoft C and Turbo C. S. Stel, Netherlands.

- **ChangeFSI update** – A new version of ChangeFSI v0.79 is available from Acorn Direct for £19.95. This will handle more image formats than would v0.69: Degas PI1, PI2 & PI3, !Translator Clear, MacPaint 579x720x1 bit/pixel, ZSoft .PCX, Windows3 .BMP, Pineapple 16 bit/pixel, UNIX rle, PC TGA. Unfortunately it will not run from the desktop under !ChangeFSI (Shareware Disc 21) as is. This is because version 0.79 is 94 Kbytes long, compared with 74K for v0.69. The solution is to edit the !Run file of !ChangeFSI and increase the WimpSlot from 128K to 160K. All is then well. A Quayle, Chester

- **C txt library** – This idea was inspired by the article 'Introduction to C' – Part 5, in Archive 3.6. This gave a complete RISC-OS application using the libraries supplied with Release 3 of Acorn C. In particular, it used the 'txt' library to provide a window to display text generated by the sample program. This requires a minimum of effort by the programmer since the library looks after most of the problems.

Although it works as described, it has two major disadvantages. The first is the slow speed during text generation. The second is the operation of the window controls. In particular, the cursor control keys cannot be used to move the text through the window, the close icon has no effect and the vertical scroll bars can only be dragged. Here are some techniques which overcome these problems.

Improved text generation speed turns out to be a very simple modification since the cause of the slow operation is the redrawing of the window for every item added to the text buffer using, for example, the `txt_insertstring` function. Two extra lines are required; the first turns off the display updates when text generation starts and the second turns it back on when the operation is complete. The lines shown below should be inserted immediately after the `visdelay_begin()` statement and immediately before the `visdelay_`

`end()` statement in the original program function `sysvars_to_text()`.

```
/* turn off display update */
txt_setcharoptions(t,
    txt_DISPLAY, FALSE);

/* turn on display update */
txt_setcharoptions(t,
    txt_DISPLAY, TRUE);
```

Improving text window control requires rather more code but again the principle is fairly straightforward. Firstly an event handler has to be registered for the text window following its successful creation by the `txt_new()` function using the following statement:

```
/* register the text window
   event handler */
txt_eventhandler(t,
    user_txevent, NULL);
```

This registers the function `user_txevent` which will be called to process text window events.

The function itself has to process all the events which the user requires. A sample function is given below which is commented to show which events are being processed. The keyboard key macro definitions given in 'akbd.h' are used for consistency but, in addition, the 'Home' key must also be defined using a macro as this is omitted from 'akbd.h'. The actual key values required are defined in the PRM, page 1198 and the macro definitions are given in file 'akbd.h'. Note, however, that the definitions given for both `akbd_PageUpK` and `akbd_PageDownK` are wrong so I have not used these but used their correct definition in the following code. The value `txt_EXTRACODE` is added to the key value to represent the equivalent window operation. A full list of these is given on page 325 of the ANSI C Release 3.

```
#include "akbd.h"

#define HOME          (30)

/*****
```

```

user_txevent      text window event
                  handler
      t            text object
      h            event handle
*****
void user_txevent(txt t, void *h)
{
    int lines; /* number of lines in
                window */

    h = h;
    while (txt_queue(t) > 0)
    {
        /* find number of lines visible in
           window */
        lines = txt_visiblelinecount(t);

        /* process the next user event
           code */
        switch (txt_get(t))
        {
            case txt_EXTRACODE + akbd_Fn+127:
                /* close window icon */
                txt_hide(t);
                break;

            case akbd_UpK:
            case txt_EXTRACODE + akbd_UpK:
            case txt_EXTRACODE + akbd_Sh +
                  akbd_Ctl + akbd_UpK:
                /* scroll up one line */
                txt_movevertical(t, -1, TRUE);
                break;

            case akbd_DownK:
            case txt_EXTRACODE + akbd_DownK:
            case txt_EXTRACODE + akbd_Sh +
                  akbd_Ctl + akbd_DownK:
                /* scroll down one line */
                txt_movevertical(t, 1, TRUE);
                break;

            case akbd_Sh + akbd_UpK:
            case txt_EXTRACODE + akbd_Sh +
                  akbd_UpK:
                /* scroll up one page */
                txt_movevertical(t, -lines,
                                FALSE);
                break;

            case akbd_Sh + akbd_DownK:
            case txt_EXTRACODE + akbd_Sh +
                  akbd_DownK:
                /* scroll down one page */
                txt_movevertical(t, lines,
                                FALSE);
                break;

            default:
                break;
        }
    }
    return;
}

```

David Scott, Stockport

- **Connection problems** – If you are having connection problems with RS423 connectors, or video or printer – or a dongle, it may be because the plugs are not ‘going home’ properly into the sockets on the back of the computer. I have noticed this particularly on A540’s, but it could also occur on other Archimedes computers. This may be because the fixing pillars either side of the socket are too high. The solution is to take a pair of pliers (or a box spanner if you have a suitable sized one) and remove each of the pillars in turn, take off the washer and screw the pillar back in. That extra millimetre can make all the difference.
- **CPC monitor** – When my multisync died on me suddenly and I was forced to make do with what I had – a well worn Amstrad CPC green screen monitor. In practice it was fairly easy to connect the six-pin CPC connector to the nine-pin connector on the A3000:

Archimedes	CPC
1, 2 & 3	– 6
6, 7, 8 & 9	– 5
5	– 4

Hints & Tips

Naturally, it is impossible to use the multisync modes but it certainly is almost as sharp a picture on the tube as on my multisync and much cheaper. If your main interest is games I wouldn't recommend it but for most business uses it is perfectly all right. I guess you could get a second hand green CPC monitor for next to nothing in the UK as many owners have exchanged them for the new CPC monitors. Ask your local dealer! A spare monitor could come in handy any day! Tord Eriksson, Sweden.

• **!Edit** – For what seems like an eternity I have been wrestling with the problem of importing text from a wordprocessor (in my case View). What I wanted to do was free the text from newline characters in order that, on loading it into Ovation, it could be formatted to new column width, in whatever point size, without the newline control code producing extra linefeeds. At the same time, it should retain the carriage returns marking the paragraphs and multi-line spacing. This way I did not lose all the style. What follows is how I do it. It might seem obvious but it could help someone who is as thick as me. If I have missed the point would some kind person tell me before I go mad.

After loading your text into !Edit, go through the text ensuring that there are double returns at the end of each paragraph and on multiple line text like program listings or poetry.

My technique is firstly to change double returns into something which is unlikely to appear elsewhere in the text, thus:

Press <F4> to select Find

In the Find dialogue box enter `\n\n <return>`

In the Replace dialogue box enter `ZCZC<return>`

Click on the Magic Character box

Click on the Go box

Click on End of File Replace

Click on Stop

Press <ctrl-up> to move the cursor to the top

Now, to replace the single returns:

Press <F4> to select Find

In the Find dialogue box enter `\n <return>`

In the Replace dialogue box press <space>

Click on Go

Click on End of File Replace

Click on Stop

Press <ctrl-up>

Then, to restore the double returns to single ones:

Press <F4> to select Find

In the Find dialogue box enter `ZCZC<return>`

In the Replace dialogue box enter `\n <return>`

Click on Go

Click on End of File replace

Click on Stop

You should have your text with the paragraph and multi-line spacing intact. (Simplified from a hint sent in by R Follett, Winnersh, Berks.)

• **Improving sound quality** – Further to the comments by Jeremy Mears (Archive 4.7 p 21) there is no need, on the A3000, to actually solder to the motherboard. You can make contact to the appropriate resistors using micro test clips (Tandy – £1.50 for four). This would, I suppose, still invalidate the warranty but is less obvious than blobs of solder on the p.c.b.! To get access to the resistors, you have to remove the disc drive by unscrewing it from underneath. R86 is under the keyboard side of the drive whereas R99 is under the middle of the drive. Pin 1 of the expansion port is the furthest right (looking from the keyboard side of the computer). Gerald Williams, Aldershot.

• **Multiple height and width text printing** – I know that the emphasis these days is on programs which multi-task and use mode 12 on the desktop but not every program is suitable for this and some of these programs require larger than usual height characters.

I am (slowly) developing a word game for the Archimedes, from one I wrote last year on my Model B. The "B" version uses mode 2, with double height routines written in machine code for speed. The original version of this code was quite "illegal" and would not work on a Master but it was fast! With it, I could also have text printed 3 or even 4 times normal height just as quickly. However, I am new to the Archimedes and ARM code is currently beyond me, so after trying various routines in BASIC I came across

VDU23,17,7. This gives characters at any height and any width and is very fast! I can even get half width which gives the impression of mode 1 characters in mode 2. Also, it works in most Screen modes (except 3, 6 & 7).

I've put together a short routine which demonstrates how easy and fast this routine is. To use it, all you have to do is append the PROCedure to your program and call it with the colour you wish it to appear in, the X & Y positions, the height and width of the characters and the Text\$ - the routine will do the rest! One point to bear in mind, however, is that text is printed using the graphic cursor, i.e. under VDU 5 and MOVE or PLOT, rather than the text cursor and VDU 31, X%,Y%.

Even though this demonstration program is about 20 lines long, the only bits you need are in PROCtext(colour, X_co_ord, Y_co_ord, Height, Width, Text\$). The function FNvdu simply returns the text width of the screen mode window in use and this is used to check if lines are too long in the first line of PROCtext. The second line in PROCtext is personal as I like being able to centralise text without effort! To do so, just set X% to -1. The %110 sets bits 1 and 2 so that both characters and spacing are altered at the same time. %100 sets spacing, while %010 will alter just character sizes. It is also possible to use 0.5 as Height or Width but that works better in "chunky" modes, like 2 rather than 12. When the width is set to an odd number, the "auto-centralising" is sometimes a little off so you may prefer to set up the X co-ord manually.

```
REM >$.Height/Wid.!RunImage
:
DIM block% 12, output% 12
MODE12:COLOUR3
:
PROCtext(1,-1,1,2,3,"Multi Height &
                               Width!")
PROCtext(2,-1,4,2,1,"Double Height,
                     Normal Width")
PROCtext(3,-1,7,1,2,"Normal Height,
                     Double Width")
PROCtext(4,-1,10,3,3,"3 * 3 Format")
PROCtext(5,-1,15,4,1,"Ridiculous! 4
                     X 1 !!")
```

```
PROCtext(6,-1,20,1,1,"You should
                     reset the height & width
                     before finishing")
PROCtext(6,-1,21,1,1,"but as it
                     stands the PROCedure will
                     do this anyway")
```

```
END
:
DEFPROCtext(C%,X%,Y%,H,W,T$)
F%=FNvdu
IF F%-(LENT$*W)<=0 THEN ERROR
                                300,"Line too long"

GCOL C%
Y%=1000-(Y%*32)
IF X%=-1 THEN X%=(F%-LENT$*2)/(W*2)
IF W=1 THEN X%=(F%-LENT$)/4
X%=X%*32
VDU 23,17,7,%110,W*8,H*8;0;
VDU 5,25,4,X%,Y%;
PRINT T$
VDU 4,23,17,7,%110,8;8;0;
ENDPROC
:
DEF FNvdu
!block%=256
block%!=--1
SYS"OS_ReadVduVariables",block%,
                                output%
=!output%
```

- **Off screen desktop windows** - Normally, the filer and switcher windows are forced to stay within the confines of the screen but, by altering their template files, it is possible to make them move 'off screen' and thus help to reduce window 'clutter'.

To do this, you have to copy the window templates from the DeskFS to a directory called Templates. First, create a directory called Templates in the root directory of your harddisc or 'workdisc' and then type the following:

```
*desks
*copy templates.filer
scsifs::scsidisc4.$.templat-
es.filer
*copy templates.switcher
scsifs::scsidisc4.$.templat-
es.filer
```

Hints & Tips

(You can also copy netfiler, palette and wimp windows across if required.)

Load the window template data into !FormEd (Shareware Disc 20) and set the 'no bounds' option for each window. Then, edit your disc !boot file to include the following line:

```
Set Wimp$Path scsifs::scsidisc4.
```

(or whatever your system is!) Don't forget the full stop at the end. This points Wimp\$Path in the direction of the updated windows.

Finally re-boot your machine to see the result! M Roscoe, Ealing

• **PrinterDM with the Star LC24-10** – I was interested to see the note on !PrinterDM and the LC24-10 in March's edition of Archive. May I draw your attention to the "Hint and Tip" which I had published in the March edition of Risc User on the same subject but concerning a different problem. I was initially disappointed in the results I obtained with Impression Junior (and from the Ovation test disc and, to a lesser extent, !Draw printouts). This was due to some lines of text having a marked "slewed" effect. After speaking to Star, and much sleuthing, I tracked down the problem to the very same line in the PrData file of !PrinterDM (version 1.12). There is apparently some incompatibility between the Star and the Epson LQ800. The former does not like the "zero absolute tab" command used to obtain the CR without LF. The solution was to substitute the commands used in the FX80 module, although modified to use the correct line feed command for 24 pin printers. With my version of !PrinterDM I have not experienced any squashed text with the 24/180 inch feed (could the writer have been in IBM mode where the command gives n/216 inches rather than n/180 inches?) but the bigger feed suggested in March's tip could equally well be used. The modified line is as follows:

```
line_epilogue  
" <27>A<0><13><27>2<27>J<24>"
```

I'm surprised that this matter has not previously been commented on, especially as I think it also applies to the XB24-10. A.F. Taylor, Poole

• **Quattro to Schema transfer** – To move data files from Quattro, first save the file with a WKI

extension. Then you can use Schema's !sch123 to translate the file into Schema format. This method leaves all sorts of spurious bits and pieces which have to be edited out by hand but it does work. M Green, Devon

• **Quitting First Word Plus** – If you quit First Word Plus (release 2) from the task manager while a text file is loaded, you will be thrown out of the desktop. If other applications are running that may object e.g. Draw, Paint, etc, they will announce what is about to happen and give you a chance to prevent it. Otherwise you will lose any files that you may have been working on in First Word Plus. R Bunnnett, Swanley

• **Reading disc names** – For those software writers who need to check that the user has inserted an appropriate disc in the disc drive the following function returns the name if the disc currently inserted:

```
DIM block% 5  
:  
DEF FNdiscname  
SYS "OS_GBPB",5,,block%  
?(block%+?block% +1)=13  
= $(block%+1)
```

M Sawle, Hampshire

• **!Schema VAT rate** – New spreadsheets are created with various user names available, one of which is "Vat". To change this from 0.15 to 0.175, look in the !Schema directory and then in the Menu directory and you should find a file called StartUp. This has a write-lock on it so you will have to use 'Access' off the filer menu to enable it to be changed. At the end of this file are a number of lines that start with 'putusn', the first of which is the Vat rate which simply needs to be changed before the file is again saved and the write-lock access restored. Ian Hamilton, Harrow.

• **Spaced filenames** – If you want a <space> in a disc or file name, use a hard space. This is available by pressing either <alt><1><6><0> or <alt><space>. You should note that if you do use it then you can't use the copy key on a catalogue because the Archimedes thinks that the character is a normal space (which is illegal in a filename).

E Hughes, Derbyshire

• **Twin World cheats** – The file SavedGame can be edited using !Edit to cheat. Byte values of interest include:

Byte 1 = Level (Maximum = 22 = &16)

Byte 4 = Red Spells (Maximum 99 = &63)

Byte 5 = Blue Spells (Maximum 99 = &63)

Byte 6 = Green Spells (Maximum 99 = &63)

Bytes 8-11 = Score, low byte first. (Maximum = 999999 = &F423F)

Byte 12 = Lives (Maximum = 9 or 10 = &9 or &0A)

Remember all value are in hex, so use the magic character option in !Edit's Find. Stuart Turgis

• **TwinWorld hints**

– Owls in the forest can be killed by jumping up and firing.

– Similarly, on some occasions you will have to jump, but fire on the way down to hit denizens close to you.

– Jump between worlds whenever possible – if you loose a life, you're taken back to the last time you changed worlds.

– Stamping your feet can reveal objects – either treasure or keys.

– Beware of calling the genie when you are already carrying two other sorts of objects (remember the horn is one), because you won't be able to buy an object which you don't already hold.

– Beware when shooting the three-headed dragon. If you don't shoot the head furthest away from you, it flies away from you and fires an almost continuous salvo.

– Watch out for extended jump – you can sometimes use it when you don't realise – on some screens it's essential and you may only have a limited amount.

– Watch out for the parachute – in the last few levels I found I couldn't get rid of it and it limited my objects to just two types.

– When firing at the bird – if you duck, it flies lower to avoid your fire. Stand until the bird is fairly close, then crouch and fire.

– When the giant clam fires at you, or the Big eye, if you run so the 'bullet' is off the screen it will disappear.

Impression Hints & Tips

Bruce Goatly (BG), who is busy writing a book about using Impression, very kindly sent us some hints & tips (in return for permission to use our H&T in his book!). Most of the rest of the H&T are from the editor's experiences with the unreleased version 2.09. (Version 2.10 is not ready for release so 2.05 is still the latest officially available version.)

• **Abbreviation expansion** – Use it to correct common spelling errors or to enforce house style (I often type 'ans' for 'and' and 'thw' for 'the', and the house style for my book is 'disk' whereas I almost always spell it 'disc'). BG.

• **Date and time format** – As I continually forget what day it is, I use the Insert date option quite a lot. If you want to change the format of the date (the default is in the form 6th April 1991), load the !Run file into Edit and alter the definition of the variable Impression\$DateFormat (see pp. 337-339 of the User Guide, on using system variables). Similarly, you can alter the time format by editing Impression\$TimeFormat. BG.

• **Dongle connection problems** – If you are having problems with a dongle that keeps saying it is not present and you find that you need to wiggle it (just a little bit!) to recognise its presence, go back and read the hint above about 'Connection problems'. Alternatively, CC themselves offer a hint about it. They say that it is important to quit properly from Impression and not just do a <ctrl-break>, otherwise the dongle might need to be left for a couple of hours for a capacitor to discharge before Impression can be loaded again.

• **Line spacing and font changes** – If a line in the middle of a paragraph starts with a different font from the lines around it, the line spacing may be upset for that one line because of the way Impression does its calculations. The way round it is to put the cursor at the start of the offending line, cancel the font change at that point and insert a 'null' character (such as Alt-131). This will be invisible but will correct the line spacing. BG.

- **Loading text files** – If you want to load a text file into Impression, there is no need to create a new document first – just drag the Edit file onto the Impression icon and it will set up an untitled document and load the text into a null frame.

- **Marking a single character** – If you are doing DTP in a lower resolution screen mode, you may be finding it difficult to use the mouse to drag-mark a single character e.g. the 'l' in 'will'. One way of doing it is to move the cursor between two of the characters, click <select> but firmly hold the mouse in place. Then you use the cursor left or right, as appropriate, to move the cursor to the other side of the character to be marked and finally press <adjust>. George Foot, Oxted.

My method of doing any of this kind of detailed work is to have two windows open on the same document – which is extremely easy to do (another advantage over PageMaker!) – one shows the full page and one just an enlarged section of the text. Then you can flick backwards and forwards between the two views enlarging and contracting the windows or simply pushing them to the back when they are not wanted.

(However, have you noticed that Impression sometimes insists on going back to the beginning of the document when you expand and contract the window using the size switch icon in the top right hand corner of the window? Has anyone worked out why it happens and, more importantly, how to stop it?)

- **Special characters** – The list in Appendix 5 of the Impression II manual gives a printout of all the characters. This is useful, but there is some variation from one typeface to another, so it would be useful to have an Impression file of it so that you could print it out in your particular typeface. I'll put a file of it on the monthly program disc, but if you want to do it yourself, you can run the following program and put the text into a multi-column Impression document.

```
10 REM > CHARLISTER
20 *SPOOL CHARS
30 @%=2
40 FOR N% = 32 TO 255
```

```
50 PRINT N%;CHR$(9);
   "{" "Heading" "ON" {\";CHR$(N%);
   "} {" "Heading" "OFF" "
60 NEXT
70 *SPOOL
```

- **Spell-checking** – Not really a hint, but I was using the spelling checker and it offered me the word "faltness" and told me that "flatness" was wrongly spelled. Also, while spell-checking, someone had written "Beebugs' policy". The spelling checker knows Beebug but can you guess what it offered me as an alternative for the accidental plural? Yes, that's right, "Bedbugs"! On the same theme, I spell-checked my Factfile and came up with Motley Electronics, Mike Leecher of EMU Ltd, ARM3's from Aloof One and IDLE drives from Ian Copycats. Then I tried some of our contributors and found Brain Cowman, Dim Parkland and last, but not least, Pall Beggarly.

- **Tickets please!** – *(The following saga gives, firstly, an unnecessarily long method of doing a job but one which illustrates techniques which might prove useful in other circumstances. It is followed by the easier, smarter method!)* I wanted to make some numbered tickets at A6 size so I made up an A4 page with four copies of the ticket. I used a two column master page so that I could just take a copy of the text on the page and paste it 14 times to make my 60 tickets. Near the bottom of each ticket, it said, "Ticket number: " with an appropriate blank space. Then I created four guide frames on the master page at about the right place to put in the ticket numbers and inserted four new frames on each page. I then went through linking all the frames together. To create the text for the numbers, I used PipeDream using the "row" command and copying it down 60 rows. I then "saved" this in tab format straight into the first ticket number frame and, instantly, all the tickets were numbered. Brilliant! The only real hassle was lining up the ticket number boxes with the words on the ticket. The problem is that although you can have both the text and the master page on screen at the same time and at the same magnification (which helps), the main page is not updated until the master page is closed so I changed the "preferences" to make the master page come up at the right magnification.

(A similar technique of linked frames is used for the running heads on the magazine – i.e. the articles' names at top outside corners of the pages. The dummy Archive, before articles are inserted, has a whole string of 60 "X"s, one on each page, alternately left and right aligned. Then, when an article has been inserted, the running heads are altered using selective search and replace to change, for example, "X" into "Hints & Tips". This is easier than using copy and paste because it preserves the left and right alignment. But I digress... let me get back to the tickets...)

Then I suddenly realised the easy way of doing it.... Create the ticket at full A4 size on the master page using "Ticket number: " and then inserting the page number. (Use <menu> – Misc – Insert – Current page number – Numeric.) Then, all you do is to add 59 pages (click on "Insert new page" with <adjust>, not <select> so that the menu option stays on the screen) and use "Fit lots" on the "Print" dialogue box reducing the scale to 50%. If you find that it still says, "Fit lots (1)" at 50% and you have to go down to about 48% before it goes to (4), click on "Setup..." and select the option to "Ignore page boundary". If you don't do this but print out at 48%, you will find that the margins are unequal. This is a much quicker way of doing it than the previous method and also gives the possibility of deciding that you want the tickets smaller after all so you just reduce the scale and, perhaps, change to sideways printing.

• **Widows & orphans** – This is the technical term for where you get a paragraph split so that a single line is on one page (or column) and the rest is on the previous or next. If the first line is split off from the rest, the solution is fairly obvious – use <ctrl-G> at the beginning of the paragraph to push the line onto the next column. The odd line at the end of a paragraph is less easy. If the text is left justified, you can again use <ctrl-G> to push one more line to the next column to join the lonely orphan. However, if you subsequently edit the paragraph so that the layout of the lines changes, you have to edit out the <ctrl-G>. Also, this doesn't work at all if you are using full just-

ification because the <ctrl-G> causes the justification on the last line of the column to be lost and it looks like the end of a paragraph without a full stop. The only solution I can find is to create a new frame with <ctrl-l> and lay it over the last line of the column. This forces that line over to the next column without losing the justification.

SCSI Hints & Tips

• **Removable drive problems** – We are beginning to understand more about the problems with removable drives. Let me explain... SCSI drives are intelligent and they keep their own record of any duff sectors. However, this record is not available to the user. If you tell the computer to "format" the disc, it deliberately ignores any sectors it already knows are duff. If you get a "soft error" i.e. where the data gets corrupted so that the CRC check shows up an error, reformatting will clear the problem. However, if the disc surface is actually damaged, it may be that reformatting clears the problem temporarily but, with time, the problem may reappear and you will get the dreaded "Disc error 10 at..." or whatever. The solution to this is to use the *DEFECT command provided by RISC-OS. If you get an error, *VERIFY the disc, note the addresses which are thrown up as either suspect or actually having a disc error, say, 7CEC00, 7CEE00 and 7CF000 and then type in

```
*DEFECT SCSI::5 7CEC00
*DEFECT SCSI::5 7CEE00
*DEFECT SCSI::5 7CF000
```

where SCSI::5 is the drive definition. It is worth recording these addresses in case you need to format the disc again in the future. You then need to enter the *DEFECT commands again. If *DEFECT finds that you are trying to map out a sector that is allocated to a file or directory, it will tell you so, in which case, you will have to copy the file or directory and delete the one which it says is in the way.

Obviously, it is better if you can avoid getting hard errors in the first place so, just as a reminder, (1) always dismount the drive properly before switching off the power and (2) keep your drive cool by not packing other hardware around it.

• **Removable drive problems (Part 2)** – Surely there can't be any MORE problems with the removable drives – they really won't be worth selling. Yes, there are more problems but, yes, I still think they are worth selling. If you try to use the MR45's or the Atomwide equivalent on an Acorn SCSI podule or on a TechnoSCSI (I have not tried any others), you will find that occasionally they just hang up – usually when copying a sequence of files. It is a timing problem which Acorn say they will look into but they are not too optimistic. They say that Syquest, who make the drive mechanisms, have interpreted the SCSI standards in a different way from other drive manufacturers. The Acorn engineers have tried to modify their software to accommodate Syquest's idiosyncrasies but although they have managed to make a version of their software that will work when copying lots of files, they find that it does not format the cartridges properly! It is not beyond the bounds of possibility to get SCSI software to work on the Syquest drives – both

Oak and Lingenuity have done it successfully but, as yet, there is no satisfactory way of running them on Acorn or TechnoSCSI cards.

I should say to A540 owners, that, although I am using a Syquest removable drive on my A540, I am doing so on an Oak podule. I made the change (before I realised there was any problem) purely on the basis that (1) the Oak software is the easiest to use on the MR45's because of the ease of dismounting and re-mounting discs and (2) it is the fastest that I have tried. (I have not yet tried the offerings from HCCS or The Serial Port but unless they have specifically tailored their software for the Syquest mechanisms, I doubt that they will work.)

• **SCSI land speed record** – Oak are claiming an Archimedes drive speed record. Their 300M HS drive, on an A440 with a 20MHz ARM3, runs at 1939 / 1761 / 1043 Kbytes/sec in modes 0, 15 and 21 respectively. Can anyone beat that? **A**

Help!!!!

• **Beginners articles** – We're still getting requests for more articles for beginners. We'd love to oblige but such articles are more difficult to write and, possibly, less interesting for the writer. Since all the articles are offered freely by members of Archive, that may explain the dearth of such articles. If anyone feels they could rectify this deficiency, do get in touch with us. Thanks. Ed.

• **Broken directory** – Can anyone help me please? I need to retrieve a small file off a disc with a "broken directory". Please contact Peter Baxter on 0772-651616 (day) 0524-701543 (evening) to discuss terms etc.

• **Hi-res printouts** – Would anybody be able to help by doing some printouts of Draw files on a Laser Direct Hi-res? For money? David Turner, London SW6.

• **Integrex paper** – Does anyone know of a supplier of good quality paper for Integrex colour printers? Brian Hunter, Macclesfield.

• **IOC memory mapping** – On page 110 of the PRM's is the memory mapping of the IOC. Can

anyone in the know reveal enough information to allow the use of the free timers? i.e. the latch and go commands etc. Jonathan Heher, S. Africa.

• **Impression printing** – Does anyone know of a firm that will output my Impression documents on a Linotype typesetting machine, preferably without converting it first into MS-DOS format? Christine Shield, Stocksfield.

• **Print bureau?** Does any known of any printers in the Manchester area who can print from an Archimedes Impression disc? Contact Torben Steeg at 92 Shrewsbury Street, Old Trafford, Manchester, M16 9AU or telephone 061-225-9706. (*Or indeed, anywhere in the country! We'll publish a list of any that you send us. Any help on this subject will be appreciated by many. Ed.*)

Help offered

• **Dynamic mouse resolution** – In answer to Jochen Konietzko's query in Archive 4.7 p60, Risc User published just such a program in volume 4, issue 1. **A**

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Comment Column

• **Alan Hight replies** – I would like to reply to Daniel Tamberg who feels aggrieved by my review of Starfleet Encounter.

He must realise that the review was, like all reviews, only my own personal views and other people must make up their own mind by trying to read all the reviews available and speaking to other people who own the game.

Let me deal with his points one by one. He says that it would be very difficult to implement a computer opponent but surely that is a programming challenge which he took on when he decided to write the program. I have tried to write some simple programs myself and agree that the computer opponent is the most difficult part but I wouldn't release it until I'd mastered it.

As to it being a board game with the computer as a referee, that is what I think it should have been but there is no board. I have played a few war-games and think a computerised referee would be a good idea but I wouldn't dream of trying to transfer the whole game to computer as that would ruin it.

Daniel says that you can pre-program macros prior to the game starting which is true of general moves but as the game progresses you need to be able to alter your plans and this would mean pre-planning a huge number of macros making the game play unwieldy. Imagine trying to pre-judge all the moves in a chess game and chess players do not have more than one piece moving at any one time.

Daniel admits that the programming of the ships is very difficult and to stick to the simple moves but what's the point of having all the other features if not to use them. I admit that I was a bit harsh by saying simultaneous use of the keyboard by two players doesn't work but Daniel admits it's not ideal and I certainly don't like the contortions I have to go through for two people to gain access.

I reiterate my first point about this being a personal view but I still think releasing the game into

the Public Domain or as Shareware would be Daniel's best bet and with the feedback, the game could be enhanced greatly. As I said in the review, I think the programming is very good and I hope he continues with some more games which I will look forward to.

• **Minerva's Timetabler** – Has anyone managed to use Timetabler to create a complete timetable? I have tried it on a small section of a secondary school timetable which I had previously created manually so I know it is possible to timetable. The Minerva program does not create a fully working timetable automatically – I was left with a number of parts to try to fit manually.

I must say that once the elements are created, e.g. room designations, staff and subject details, the program is reasonably straightforward and potentially extremely valuable. I can also see that the time saving for next year would be tremendous as the room details etc would not have to be re-entered. However, unless it can create a fully working timetable, it is not really very useful.

The program also does not seem to have followed the Acorn rules about windows. You can only have one window open at a time – as soon as you open one window, the current one closes. Peter Blenkinsop, Watford.

• **Ovation versus Impression** – Aren't you taunting Risc User a little too much? After all, Ovation is really "Ovation 1" and it surely compares well with "Impression 1". I have both Ovation and Impression II and always use the latter! I don't know what that says, but Ovation really is a good program and it does have some features lacking in Impression (and vice versa, of course). Both Beebug and CC are working on bigger and better DTP programs and it will be interesting to see the next generation of programs. By the way, I *don't* like the protection system used by Beebug and much prefer a dongle. John Jordan.

• **Ovation for Risc User?** – Mike Williams, Risc User's editor writes... From your recent editorials, it might be thought that you had some vested

interest in Computer Concepts' Impression II. And that from a magazine which we all thought was independent! At the moment we don't happen to use Ovation for originating Risc User, though some of the advertising copy is produced in this way, but then neither does it seem very sensible to throw away all our Apple Macintoshes (purchased some years ago at a not inconsiderable sum of money), and bear the cost of purchasing replacement Archimedes systems. We thus keep costs down and make the most efficient use of our resources, all of which has nothing to do with the ability of Ovation or any other Archimedes based DTP package to do the same job.

In fact, Ovation is widely used within Beebug for many tasks. All of the Company's manuals are produced using Ovation, our book 'File Handling for All' (reviewed in Archive 4.7) was entirely typeset using Ovation, and it is routinely used by both technical and non-technical staff for a variety of purposes.

We feel that our job is to produce the best possible magazine for Archimedes users. We make the best use of the tools available to us, and we try to be sensible and economical in the use of our resources. We may not use Ovation, yet, but neither do we use Impression. End of Argument.

Archive Editor replies... No, we don't have any vested interest in Computer Concepts, though we did get a complimentary copy of Impression to use for the magazine. We made an independent decision about which was the best DTP to use for producing our magazine – this was based on advice from various different independent people "in the know". What can we say now, in the light of our experience? Well, not having used Ovation, we cannot give a fair comparison between that and Impression (but see the comment above) but we *can* make a fair comparison between Impression on the Archimedes and PageMaker on the Macintosh. As a result of that, my advice to Risc User would be that it is SO much easier to produce an Archimedes magazine on Impression that, in the long run, they would save money by selling their Macs, buying an A540 (which they get at dealer prices, of course) and using Impression – I'm sure Charles Moir would give them a complementary copy, too.

• **Powerband from 4th Dimension** – I was surprised with the review of Powerband (4th Dimension) in Archive 4.7. I found it very disappointing and not up to the standards of Apocalypse (also by G. Key). I know reviews are ultimately subjective and influenced by the reviewer's experiences and expectations, but here are the comments I made about it in a review I sent to Arcade BBS on the 14th January, 1991. It was written before the second version of Powerband was released but my views have not changed since.

I have been waiting for a decent driving/racing simulation for quite a while, (to ween me off Revs) and when Powerband was rumored to have been released, I rang 4th D and ordered it. My final evaluation of it is that it does not approach the realism of Revs. No other micro-based simulation has, apart from 'Power Drifter', which gave the same sort of "gut-wrenching" feeling when you go over a hill at speed. Another disappointment is that there are no pits to change tyres, refuel, repair damage... Variable weather might be nice as well. However, the most serious deficiency of the game is that the racing is *unrealistic*; you can be going flat-out at, say, 242 mph around a gentle curving bend and another car comes hurtling past you about 50-60 mph faster – a bit improbable. Also, during the World Championships, the same drivers get the same positions in every race (mind you I've only done nine races so far). Powerband is a lot better than his last effort, E-Type, so perhaps G.Keys' next driving game could carry on where Revs left off, about 6 years ago on an 8 bit 6502... Chun Wong, Sheffield.

• **Schema** – I was interested in the comments on Schema in the last comment column.

I too have had a try at Schema and found it a great disappointment. Having tried other spreadsheets in the past, I was expecting great things. On the surface it looked fine but, when I tried to use it, I did not find it at all intuitive.

There were a number of irritations: (a) It does not support the ^ function for raising to the power. The exponential function, I find clumsy. (b) There are no function keys for insert/delete columns or rows. Using the mouse, I found irksome due to

the number of menu options. (c) Far too many menu options, which makes it difficult to remember which menu option to use. (d) To insert a column to the far left of the sheet requires adding a column to the right of column A and copying A to B. Very untidy. (e) Schema cannot tell the difference between text and numbers/formulae. Text has to be given quotation marks. Most spreadsheets are far more intelligent than this. (f) Before

entering anything into the scratchpad, the cursor must be placed over the required box and you can not move to another box after entering your text in the scratchpad.

These are just some of the niggles I found and I will certainly not be buying this product.

Come on Computer Concepts, let's have a spreadsheet that links to your superb Impression and Equasor. Eddie Lord, Crawley. **A**

Matters Arising

• **Archimedes viruses** – We have received the following statement from the Computer Crimes Unit in London... "Thankfully the Archimedes' youth and overall responsibility of its users has ensured that very few Archimedes viruses have been distributed. However, if the problem is going to be tackled, it should be attempted early. Hence, anyone who has been afflicted by a virus should send full written details and, if possible, a disc containing an isolated copy of any files that have been affected. *Please clearly mark this disc – Archimedes Virus.*

All suspect files should be in a directory called 'Infection' and should have their file types set to Text (FFF). Any other details, such as when the infection took place (Date Stamp) or even the source of the infection may help the Police at the Crime Unit to identify the virus writer. *Release of a virus is now illegal (Computer Misuse Act, 1990).*

Any other comments or information which could lead to the identification of a virus writer will also be appreciated. You may reserve the right to remain anonymous.

Please send all discs marked 'Archimedes Virus' to: The Computer Crimes Unit, 2 Richbell Place, London, WC1 8XD. Clive Gringras & Warren Burch

• **'Co-Routines in C' errata (Archive 4.6 p 23)** – The text immediately after each left curly bracket "{" in 'Coroutines in C' disappeared in the print. Here is a list of affected structures and missing text:

```
typedef      { jmp_buf
main         okay!!!
input        { int
              for    { printf("input
output       { int
              if     { int
              while  { this
co_resume    { if
              if     { co_current
co_initialise okay!!!
co_start     { co_procedure_t
co_create    { int
              if     { printf("co_create
```

When text is imported into Impression, the text following a "{" is automatically stripped out. This is because Impression commands are enclosed in curly brackets. Cy Booker has kindly sent us an application which will convert C listings to text suitable to import into Impression II v2.05. This has been put on this month's magazine disc. Ed

• **Fan quieteners** – Paul Skirrow had a fan quietener from Ray Maidstone for review. Unfortunately, he found that it wouldn't fit properly into his computer. There wasn't enough space next to the hard disc drive to get it in. On investigation, it was found that he had one of Watford Electronics' "free" hard discs – buy a 410 and you get it upgraded "free" to 2M and a 20M drive. Unfortunately these "free" drives are rather bigger than normal. Secondly, Paul found that even if he

disconnected the fan all together, it didn't make much difference to the noise level because the "free" disc was so noisy. Paul therefore returned the fan quietener as he did not feel that he could give it a fair review.

As a result of this experience, Ray has modified the fan quieteners so that they do fit with these extra-large drives. He also found that they are not all as noisy as Paul's drive so it may still be worth using a fan quietener even if you have got a Watford "free" hard drive.

• **HawkV9 Utilities** – The HawkV9 utilities mentioned in the Help Offered section of Archive 4.7 p 60 are in fact HawkV10 utilities, the latter being monochrome not colour. Apologies to Claus Birkner, the author, for the mistake.

• **HP DeskJet 500 with FWP** – On this month's magazine disc there are two First Word Plus printer drivers for the HP DeskJet 500. One uses the CG Times font and the other Letter Gothic. Thanks to Dave Morrell who sent them in. **A**

Competition Corner

Colin Singleton

Another classic problem this month. In 1779 Leonard Euler proposed his Officers Problem:

Thirty-six officers, of six different ranks and from six different regiments, one of each rank from each regiment, are to form a square on the parade ground such that each row and each file contains just one officer of each rank and just one from each regiment.

Do not waste time on this one, there is no solution. Euler conjectured that there is no solution for any oddly-even order, i.e. 2, 6, 10, 14 etc.

The order ten problem, however, was solved in 1959, barely into the computer age. This, then, is your problem. Can Archimedes solve this problem in less than 180 years? If so, how long does your program take to find a solution? If no correct solution is received, the prize will go to the one with the fewest errors (repetitions in a row or column).

To re-phrase the problem, place the two-digit numbers 00 to 99 in a ten-by-ten grid so that no first digit occurs twice in any row or column, nor does any second digit.

Solutions, and comments, either to N.C.S. or to me at 41 St Quentin Drive, Sheffield S17 4PN.

Winners

Now, as promised, the winner of the December competition, which was to find numbers which can be multiplied by an integer simply by a cyclic rotation of their digits. You were asked to find the smallest such number for each multiple, e.g. $076923 \times 3 = 230769$.

The winner is Joseph Seelig, of North Harrow, whose program has investigated multiples up to at least 80000. It is good to see a new name on the trophy. Joseph's spooled disc does not list a solution for 1757 but that is because he set a limit on the length of numbers to be investigated. Given more time, his program (without modification) could have found a solution. No contestant offered a solution for 1757.

Readers may be interested in the techniques used by the winners of this and future competitions, so I will do my best to oblige. From the coding of Joseph's program, his technique appears to be essentially the same as mine, although his coding is neater.

I proved that the solution for a given multiple must be the first cycle of the recurring decimal representation of the reciprocal of some integer or, to put it another way, it must be a factor of some number consisting of all nines. In the example above $1/13 = 0.076923$ recurring, and $13 \times 076923 = 999999$.

At least one contestant missed several solutions by considering only the reciprocals of primes. Any number ending in 1, 3, 7 or 9 has a recurring decimal reciprocal and must be considered.

All the cyclic rotations of such a number are multiples of it. Thus 769230, 692307, 923076, 230769 and 307692 are 076923 multiplied by 10, 9, 12, 3 and 4 respectively.

The numbers involved can be very large but multi-length arithmetic is not needed. The sequence of multiples can be derived quite simply. If the

multiple, M is initially set to 1 and R is the reciprocal (13 in my example), then successive multiples can be calculated by repetitive use of the expression $M = 10 * M \text{ MOD } R$, until M returns to 1. The number of repetitions indicates the length of the number.

The programming technique requires a list in memory (initially empty) of the best solution found so far for each multiple. For ever-increasing values of R, calculate the sequence of multiples for each R and check whether this R provides a better solution than that already found (if any) for each multiple. You need to remember the length of the solution for each multiple as well as the value of R.

This does not guarantee to find the smallest solution for a given multiple, since a higher value of R might give a shorter solution.

To be able to print the best solution (to date) for a given multiple, it is necessary to hold the list of values of R on a file. The actual solution (the reciprocal of R) can be generated by initially setting X to 10 and repeating the calculation $X = (X \text{ MOD } R) * 10$ until X returns to 10. At each stage print the value of $X \text{ DIV } R$, which will be a single digit.

Incidentally, the best solution I have found for 1757 is derived from $R = 2377$ and has 264 digits. It is...

```
0004206983592763988220445940260832982751
3672696676482961716449305847707193941943
6264198569625578460244005048380311316785
8645351283129995793016407236011779554059
7391670172486327303323517038283550694152
2928060580563735801430374421539755994951
619688683214135464871687
```

A

ArcScan III

Eric Ayers

Eric, who very kindly prepares the Arcscan data for Archive magazine month by month now has a copy of the latest version of Arcscan and gives us his comments....

Beebug's ArcScan II is an easy-to-use system for quick retrieval of magazine articles and other reference material, and is supplied complete with index files for Beebug, Risc User and Acorn Manuals. It is simple to adapt the system for other data: for example, I have all my computer programs, with brief access and operating instructions, indexed on it. Archive magazine and disc indexes are available in this format on the Shareware 7 disc, and are updated regularly on the Monthly discs.

A new version – ArcScan III (v.0.5) – has just been issued. It is compatible with files created on the earlier version and the 'free' files supplied have been extended to include the ANSI C Manual, and both versions of the Acorn User Guide. There is a half-promise to make available (to Beebug members ?) indexes for Micro User and Acorn User journals right from issue 1. So what are the main differences in the program itself?

The presentation has been completely changed: it now multi-tasks, with normal WIMP scrolling windows, menus and icons, and standard wild-card conventions. An excellent HELP facility is available from the icon bar menu. The limitation to 25 lines per record, imposed by the previous fixed window format, is removed. This was a real limitation with some of the more ambitious Shareware discs! It is possible to specify the database to be loaded on start-up. The requirement for magazine issue and volume files to be consecutive has been lifted. A NOT option has been added to the search logic.

The icon bar menu now offers three 'turn-off' options: CLOSE removes windows only, CLEAR also removes the resident database, while QUIT removes everything. At all stages, unwanted memory is automatically returned to the system pool. The PRINT option also appears now on this menu, and it is here I have my first niggle.

If you happen to search for a string that appears 350 times in the file, and then click on PRINT, you have the option of sweating it out or pressing <reset> – nothing less will stop it. This makes nonsense of multi-tasking, which is suspended

during printing, and a <reset> loses everything. One thing **must** be included in v.0.6 – a scan for the escape condition to abort printing immediately. Also highly desirable would be the facility to scroll and size the screen window and print out just its contents, **without** the 9 extra lines of header information – in other words, mouse-controlled selective printing.

Finally, I cannot resist a verbatim quote from the copyright notice in the ReadMe file: "... the data for all Acorn indexes in this database carries a joint copyright. It must not be copied or used in any way without permission..." (My italics). Pity! – I did so want to use it to look up SWI Wimp_Poll. Seriously though, ArcScan is an excellent product. It scores over more complex

databases by being tailor-made for the particular job it does well. But, **please**, Dr Calcraft, will you get something done about that PRINT option!

*(I use Arcscan a lot to access material from back issues of Archive and find it very effective. The only MAJOR drawback from my point of view is the lack of use of RISC-OS printer drivers. If you don't happen to use a simple parallel or serial printer, tough! However, there is a way of doing it. You can spool it to file and then load the spooled file into !Edit or Impression, say, and then print out using the RISC-OS driver. *Spool does not work for this, but it can be done by using*

SET PrinterType\$5 RAM:filename (or whatever filesystem or filename you want to use) and then *FX5.5. Ed.)* **A

Language Column

David Wild

Since I wrote the last language column, I have had a letter from Mr T P Rowledge, of Winchester, who feels that I was a little dismissive of Smalltalk when I talked about the "cut-down" version. I am sorry to have given that impression but it really was the only version which I had seen mentioned in the magazines. Mr Rowledge, who ported both Little Smalltalk, the "cut-down" version, and Smalltalk-80 to the Archimedes tells me that the main version is now available from Smalltalk Express Ltd, although he doesn't say how much it is.

I am delighted to hear that the system is now available for the Archimedes and hope that a review will soon be appearing in Archive. One thing that I would like to say, however, is that we must start thinking in terms of the benefits to be had by using software of any type rather than just the advantages to the programmer. I see the difference between benefits and advantages as being that benefits are "cashable", and can be included in a proposal to the boss, while advantages are those things which affect our preferences once the benefits have been established.

Perhaps one way of seeing this difference is to look at some of the excellent software offered by the Data Store at Bromley. Several of their utility

programs sit on the icon bar of my machine all the time but, although they make life easier, it would not be true to say that I would be severely handicapped if I didn't have them. These programs have advantages but I could always use the command line to do the same job if someone took them away. !FontFX, on the other hand, does a job which I certainly couldn't do for myself and enables me to produce better-looking newsletters (not related to computers) which would justify a higher price if I were not the honorary editor. It is reasonable to claim this as a benefit as the improved appearance is noticed by people who have no interest in my computing tasks.

There is no question of the utility programs being in any way inferior but it is the programs like !FontFX which will increase the appeal of the Archimedes and so lead to wider use of the system.

Charm

In the March issue of Archive, I mentioned the new, at least for the Archimedes, language called Charm which was sent to me by Peter Nowosad. The idea of the language is to provide a fast, easily compiled, language which will work on a single floppy 1mb machine. It is block-structured like Pascal and 'C' and incorporates many similarities with both of them.

The compiler itself generates assembly language statements which are then run through an assembler before being linked with libraries to form the final executable program. Several example programs are included in the package, including a fully multi-tasking version of Chinese Checkers which runs in its own window after sitting on the icon bar. The only fault I can find with this program, which takes up 1500 lines of source code, is that it wipes the floor with me before I have managed to work out what is going on. There is also another game, this time not multi-tasking, in which two serpents, controlled by the program, hunt another snake controlled by the programmer. The graphics are excellent, especially in view of the relatively small amount of program code.

An editor, compiler, assembler (which can be used independently) and linker all come as part of the package which will be marketed by David Pilling at £5.99.

The one major criticism which I had of the package so far is to do with the documentation. Peter is a computer enthusiast who has ported the language from a 68000 development machine and the instruction manual is really addressed to other computer enthusiasts rather than typical users. When this has been tackled, Charm should be a means of writing some very powerful packages for the Archimedes. With a new language like this, the author's documentation is vital as there is nowhere else that users can go for help. Later, when a language becomes accepted, textbooks start to appear and the "local" documentation becomes much less important.

The problem is, of course, not just confined to the Archimedes and to languages. Many of the PC programs which I use at work are very badly documented. I recently upgraded my scanner, which I bought from Technomatic, and with the package comes a new manual. The first chapter of this is devoted to installing the board; a task which, with luck, I will never do again. I feel that this sort of information should be in an appendix; as it happens, I am the only person who uses my machine but in a busy office many people may need to look at the manual and they don't need installation information.

My suggestion is that a language manual should start with a simple program, slightly more elaborate than the classic "Hello World", and there should be full explanations about why the programming rules are there. When this has been dealt with it would be appropriate to go on to using the compiler, assembler and linker. In the case of a language with its own editor, like Charm, editing instructions can be mixed in with the programming part but the rest can wait. Technical descriptions should be in an appendix unless they actually affect the use of the program.

Scheme

I have received a note from the distributor of Scheme telling me that version 4 of the language is well into the planning stage. This will include full RISC-OS compatibility, the ability to manipulate very big numbers, vectors and structures as primitive data objects, additional macro facilities and structure building and syntax checking in the editor. There is also to be a new edition of the handbook with more examples and two-colour printing.

Together with the language itself there will be example programs and utilities including packages for linear algebra, polynomials, numerical methods of integration and approximation and several tasks to do with group theory.

I don't know yet when the package will be available but I will put something in this column as soon as I have more information. With the extras package, it should certainly deserve a place in the sixth form maths class. **A**

Credit where it's due

• **Lingenuity** – Thanks are due to Lingenuity for their help to Ellen Wilkinson High School. We ordered a piece of advertised software and needed delivery before a cut-off date when the money would have been "lost". Lingenuity had withdrawn the software but they supplied an alternative, considerably more expensive, piece of software at the price of the original software we ordered. Mike Battersby, Northolt. **A**

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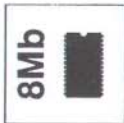
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Analogue Measurement on the A3000

Peter Thomson

The BBC-B computer provided many enthusiasts in schools and universities with an excellent introduction to measurement and control. The A3000 offers many advantages. Although the standard machine does not include the analogue port, it is an inexpensive addition. HCCS sell a user/analogue port expansion for £44 +VAT and Morley sell a user/analogue port + I²C for £69+VAT.

Both are well made boards and can be fitted without any real difficulty, simply plugging into the expansion sockets toward the rear and left of the main circuit board. No other changes are needed.

The analogue port can be controlled from BASIC in exactly the same way as on the BBC-B. The HCCS board has a slight problem here with one command. ADVAL 0 DIV 256 should test the analogue chip to report the most recent channel to complete conversion. This does not work on the HCCS board, but they tell me they are looking into it. This is no real problem unless you are recording values at the maximum conversion rate and want to be sure of recording each conversion once only.

The conversion rate is twice that of the BBC-B, at 5ms per channel. Here, the advantage of using the A3000 becomes clear. The BBC-B could only cope with a 10ms conversion per channel using machine code routines to collect, display and store the data. The A3000 can run a routine in BASIC to collect, display and store data at 5ms intervals with time to spare. The routine has to be slowed down because it can complete this loop at 1ms intervals, recording the same value several times before the next conversion.

My collection of sensors developed for the BBC-B analogue port plugged into these expansion boards on the A3000 and worked without any problems. I use a home made protection for the analogue port that uses resistors and diodes, based on the design by Dr John Martin of Salford University and again this works without any need to make changes.

My data-logging software for the BBC-B used machine code routines to increase the speed of data handling and program overlays to provide a series of menu options while leaving a reasonable amount of memory for data storage. The A3000 renders most of these memory conserving tricks obsolete. All the software will fit together with a vast data store. This greatly simplifies the programming.

Excellent value for money

For any enthusiast, or for any school where data-logging is part of the core curriculum for every child, I would recommend the A3000 + either analogue port.

Sensors

I think that the greatest educational value is gained by producing your own sensors. Light dependent resistors, thermistors etc are standard components in school science laboratories. A simple potential divider using V_{ref} and ground with the output to an analogue input on the port makes a simple and effective sensor. For those who wish to purchase ready made sensors, there is a wide range now available from all laboratory suppliers.

Measure-It from RESOURCE

This pack contains an interface to the analogue port, two temperature sensors, one light sensor, a switch on a lead and data-logging software. It costs £64.50 +VAT. The analogue port must be fitted before this package can be used. No problems were found with the use of this package with either of the analogue boards.

The interface to the analogue port is robustly made inside a small metal case. It should protect the computer from any accidental misconnections of sensors. The sensors supplied all connect to this box with 5 pin DIN plugs, again this should prevent misconnections. The sensors are each supplied with 1m of cable. They should stand up well to school use.

The temperature sensors are precalibrated by the software and are accurate to within one degree celsius, suitable for temperatures up to 100°C. The light probe is an L.D.R., suitable for room

Analogue Measurements on the A3000

lighting but producing a value too high for the converter in daylight. This is a fault of the amplifier in the circuit in the Measure-It box, rather than the sensor. Unfortunately there is no provision to adjust the output signal.

Other sensors can be purchased. The instruction booklet also describes how to connect your own sensors to the interface box.

Toolkit

The software runs under RISC-OS and uses RISC-OS printer drivers. It leaves other applications intact but not accessible while it is running. The menus do not use standard RISC-OS display formats or selection methods. It is important to read the readme file on disc as the guide book describes an earlier version of the software.

The first menu set offers a choice of thermometer display, temperature/ time graphs, measurement of a time interval, event counting and general data logging.

The screen display of thermometers with a bar to show the temperature and large characters is excellent, clearly visible from the back of a large room. The graph displays are not so visible.

General data logging only makes use of three channels, I found this a major omission. I did not like the system of setting time intervals which offers a limited choice of preset times. Readings could be taken at 2 second intervals but not at 4 second intervals, and no high speed readings are available.

The event counting counts twice for each push of the switch, once for on and once for off. I would have liked an option to count on the rising signal only to count from my geiger-teller unit.

The second menu offers a larger range of options, mostly for specific experiments for which extra hardware is needed such as pendulum motion and pH measurement.

Facilities to review recorded data seem to be limited. Some recording options permit the graph to be re-drawn to display a small section in more detail but other options do not allow this. Other facilities that I thought lacking were the ability to calibrate my own sensors and to transfer the data to other software packages.

Conclusion

Measure-It from RESOURCE is a good low cost introduction to data-logging on the A3000. For younger pupils it is excellent but the software is rather limited for GCSE or A level work. **A**

Contact Box

• **Australian users** – UK Archimedes user emigrating to Australia in July, hoping to settle near Adelaide would like to hear from any other users in the area. Please write to Ewart Jones, c/o Paul Rivett, 23 Bright Crescent, Mount Eliza, Victoria 3930.

• **London area** – The Club A3000 is having a second Open Day on Sunday June 23rd at Mill Hill School, NW7. For more details, contact Club A3000, 42 Michelham Down, London, N12 7JN.

• **Warrington** – Any Archimedes user or user groups in the area, please contact Robin Melling, 80 Severn Road, Culcheth, Warrington WA3 5EB. **A**

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Structural Analysis – CASA

Richard Fallas

The catalogue of Archimedes software is now beginning to expand at a healthy rate with applications of a 'specialist' nature also becoming more numerous, but the choice in many fields is still limited. Whereas in the PC world, specialised packages related to disciplines such as Civil Engineering, Architecture and Structural Analysis abound, in the Archimedes domain they are rather thin on the ground.

Enter CASA

In Archive 3.1, I gave a brief review of Plane Draft from Vision Six Ltd which is a Structural Analysis package. CASA comes from the same stable and replaces the earlier program with the same modular options, although now pin jointed trusses and frames are combined in the same module and grids in another. Versions are available for up to 32 nodes (& 32 members, loads, etc) priced at £150 per module, and at £450 & £300 for the full Frame and Grid programs respectively.

CASA is RISCware, and the maturity of long term development is evident. The WIMP front end makes it a delight to use in most respects. Perhaps the most impressive thing is the way the GUI has been set up to act as just that: a Graphical User Interface. Input of the various data types is assisted in many instances by use of the mouse pointer supplementing key strokes. There is an important balance to be struck of course, within RISC-OS, to ensure that the 'right' control and input methods are available. By and large, Vision-Six have achieved this balance. Also, they are responsive to suggestions and constructive criticisms, as witnessed by the updates I have received in response to suggestions. I would expect this to continue and believe purchasers of CASA will benefit from future improvements as the program matures further.

CASA uses a split application technique; !CASA itself is the front end and is used for input, editing and also for output control once processing is complete. The same program is used for both frames and grids by a clever switch of axes (orth-

ogonal or isometric) and I will return to this application shortly.

Processing & analysis

Processing is carried out by a separate application: !2Dframe, or !2Dgrid, as appropriate. Controls here are limited to setting load case factors, titles and number of passes for Second Order Analysis. This split technique is used in order to make operation on 1 Mbyte machine possible and it works well in practice – up to a point. During the course of my testing I upgraded (painlessly) from 1Mbyte to 4Mbyte following Stuart Bell's positive experiences with IFEL, and it must be said that the convenience of being able to switch back and forth quickly (e.g. for tweaking faulty input) is a real boon. I am sure that the current pricing of the various A310 2/4Mbyte upgrades will enable most 1Mbyte users to grasp the full advantages of RISC-OS – after 2 years, it had become a 'must' for me; more essential in my view than a hard disc.

As !2Dframe (or !2Dgrid) does its work ubiquitously and quietly passes the updated data back to CASA (or saves it to disc on a 1Mbyte machine) there is little to be said about it, as long as it works. One toggles the required load cases to be combined, sets titles and factors in the writeable fields, and selects 'Analyse', repeating the process for each load case or combination required. I would prefer, however, to be able to set up multiple combination load case alternatives on one processing batch; so that a single print out covers all cases. During analysis, checks are carried out on the model to ensure it is soluble – error messages are very helpful here, e.g. "suspected mechanism at Node..." Careful handling of pin joints, supports and any settlements of supports is required to avoid such problems but this is common to all frame/grid analysis programs. This is, after all, a tool to be used by Engineers (and students) who have an understanding of the limitations of the process.

Correct analysis?

As to whether the analysis part works – I checked it using numerous frames and grids, previously

analysed using my own and other commercial packages and found excellent correlation in all 1st order cases. CASA's 2nd order analysis is not commonly available and is a somewhat revealing (and valuable) addition. Here a second (or more) pass is made using the deflected frame from the first pass as the starting point – convergence to a final solution will generally be rapid after say 3 passes. It could, conceivably, show up a potentially dangerous instability. This facility is, as far as I am aware, unique – certainly for software remotely near this price level. It is also a sensible extension of computer design – use the crunching power of the machine to improve confidence in the solution for no increase in input effort. By the way, analysis on the Archimedes is fast enough for any reasonable user – a slight pause gives the brain a chance to catch up!

!CASA is much more evident in operation than the analysis applications and it's a gem. Input short cuts using the mouse are available in many operations. Also, an inbuilt database of rolled steel section sizes gives convenient access for setting up member types – unless you're working in concrete or timber in which case you will need to calculate A & I values (and J if using grid). As mentioned above, !CASA is switchable from frame to grid input. In both cases, input and editing changes can be reflected on the screen automatically, or as required. I wonder if a 16" or 20" screen with one of these fancy new modes would give more (useable) desktop space, as it can get a bit cluttered with umpteen windows open at once! (How about a twin screen Archimedes Acorn? – or even one that looks a bit more like my drawing board, i.e. big and flat!!)

Graphical output

Graphical output options are exceptionally well supported – deflections, loads, moments, shears, node and member labelling options – all are scalable; with hardcopy being via RISC-OS drivers. One can get somewhat confused with all the menus and options, however, and there is quite a lot to master. I have queried the load case separation with VisionSix and they have introduced colour coding to help with this.

Textual output goes straight to the printer but graphical output requires the appropriate driver to

be installed. Print cancelling is now available via <escape> (as it should with all software). Control over presentation of hardcopy is available, although text is a little spread out for my liking; printouts tend to get bulky enough as it is. It is possible to send text output to file and Pipedream happily accepts the data as tab file format, so presentation could be altered – but beware that errors don't creep in!

Early difficulties with line-feeds on my RX80 were resolved with an additional print format dialogue box; surplus page feeds on my Desk Jet have yet to be eliminated but this is a one-off setting up problem. The manual should be much more thorough on this aspect, however – in fact the manual is probably the weakest part of the package. Better to be wordy and pedantic but comprehensive, than to be brief, with such a serious application. A full worked example is given, however, and this is very useful. Manuals for RISC-OS programs must be hard to write though and I appreciate the difficulties of anticipating questions from the user.

Summary of features

Space doesn't permit a blow by blow treatise on CASA – in any case, demo discs are available, so that is the best introduction you can have. The following list of additional features should give you a flavour of the sophistication of !CASA:

Multiple windows with different views, loadings, scales simultaneously; frames can be rapidly converted to Grids and vice versa; automatic gravity loading switchable; trapezoidal, part-loads and point loads on members; settlements can be applied to supports; internal hinges at some or all nodes; lack-of-fit and thermal effects can be specified; Plotmate output available; quick input of regularly spaced nodes available.

Conclusion

The product is aimed at a specialist market, but at a visit to the Computers in Construction Exhibition recently, I did not see a comparable competitor for less than 10 times the entry level price of CASA. Sadly I saw not a single Archimedes. Yet for those Archimedes users who need such a thing, this program will pay for itself over and over. Students too will gain from having an affordable vehicle for "what happens if-ing".

VisionSix have done very well in producing this application and it is definitely a "good thing". Of course, the fact that it is an Archimedes application makes such excellence possible and also limits its use to those 'in the know'. I wish them luck breaking into the market.

PS: I would be happy to compile a register of Engineering Software and sources; I'm sure there is more software available than is commonly advertised. If the response warrants it perhaps Paul will print such a list in Archive? **A**

Landmarks – Egypt & World War II

Doug Weller

Logotron has long been a producer of quality software for schools. It is now merged with Longman and is the publisher for BBC Software. Its latest offerings for the Archimedes are two packages complementing the BBC Landmarks series, although they can be used on their own without the TV or radio programmes.

Computer stimulated learning

Logotron makes the point that these packages are meant to stimulate learning and are not CAL. This means that much of the learning should take place away from the computer, particularly factual learning. The Landmarks programs are seen as providing a framework for children's learning, helping children to gain an understanding of life in the past, a feeling for the time and the place and an empathy for the people involved, as well as an idea of how individual facts fit together.

This is not easy on a computer but I felt that these two programs went a long way towards meeting their stated aims. They do this by involving children in a dialogue with children of the past – with these two programs, a 12th century BC Egyptian boy and a 10 year old girl living in 1940. The screen is divided into two windows, one for text and one displaying relevant pictures.

Interactive history

Each program starts with the computer child introducing itself and asking for the user's name. The user (the teachers' book gives suggestions for classroom organisation and advocates having children work in small groups) is then asked to type in his/her name. The computer child then offers to show the user around their town or village. Movement is either by arrow key or by the familiar GO N, although GOTO placename often works.

If this were all, it would be nice but not exciting. But there is more – children can also actually talk to the computer child, asking questions and making suggestions. Such questions as "Do you have any brothers or sisters" or suggestions such as "Turn on the radio" get a response which can often lead to further questions.

When I tried using the Project Egypt program after my son had finished using it, my responses showed the computer that I was a different person, and the Egyptian boy asked (very politely) if he was still speaking to Matthew. When I replied negatively, he apologised abjectly and restarted the program!

Realtime

The program stays active for three days. This means that when a group comes back to the computer the 2nd day, a day will appear to have passed for the computer child and things will seem to have happened while the computer was off. If you try to talk to the WWII child after the 3rd day she explains that the bomb damage at her school has been repaired so she can't talk to you anymore, and says goodbye.

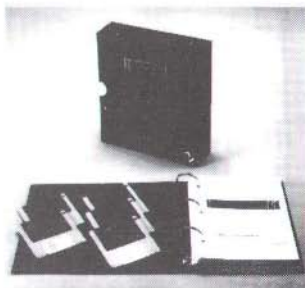
Summary

These two programs, Project Egypt and Second World War, are a must for anyone covering these periods and have access to an Archimedes. Costing only £19.95 and including excellent pupils' materials for off-computer work, they bring history alive and put children in touch with life in the past – the goal of most teachers but one which is difficult to achieve. I only hope that Longman extend this format to other historical periods, including those covered by the BBC ZigZag series, covering the rest of Key Stage Two core history. **A**

Impression is not

Well OK, that's not true. Although Impression has established itself as the most popular DTP program (and the most flexible) for the Archimedes, it may be surprising to learn that most owners use it day in, day out as their preferred word processor.

Impression was in fact designed from the start to be a word processor, by the company that developed Wordwise and Inter-Word, the most popular word processors on the BBC Micro. However Impression now uses the power and flexibility of the Archimedes to take word processing beyond what was possible on the original BBC Micro while losing nothing of the ease and simplicity of its predecessors.



"Easier to use than Wordwise". Well certainly no more difficult. For example to create and print a simple letter, even one many pages long, involves the following simple steps, (assuming a printer is set up and ready).

- Start Impression
- Click on icon for new document
- Click in window and type letter
- Press PRINT key followed by RETURN

There are no embedded commands to remember and it's not even necessary to use any menu options. If you want to use different text styles or justification options, these can be selected from the function keys (or menus). Selecting regions of text (for deleting, copying, moving etc) could not

be easier than with the mouse, especially since we added such touches as automatic scrolling of the window when attempting to select beyond the visible window.

So not only do we feel Impression is easier to use than other word processors, it is also more powerful - not only can it handle more complex documents, it copes with much longer documents and provides unmatched control of the presentation and appearance of the finished document. By using the Acorn outline font system Impression offers complete control of type style and size - the type on screen exactly matches the final printed result.

One feature that sets Impression apart from other DTP programs is that it offers both the outline fonts system and a system-like font for simple 'character' mode or draft mode operation. This also means it can drive dot-matrix printers using their native built-in fonts for maximum speed. Of course using the RISC OS printer drivers in high quality mode means that whatever you do on screen, whatever fonts, size, position, style, graphics are used, they will be reproduced at the maximum resolution of the printer.

For the power user (that is someone who produces documents of any type on a regular or professional basis) Impression II provides the necessary features (frames, styles, master pages, embedded graphics, unlimited length documents, contents and index generation etc).

$$J_n(x) = \frac{x^n}{2^n n!} \sum_{s=0}^{\infty} \frac{1}{s!(n+1)^s} \left(-\frac{1}{4}x^2\right)^s$$

Version 2.1 is now available. It

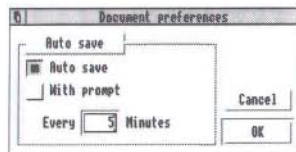
includes automatic timed save, crop-mark printing, vertical rules for things like tables and sidebars, and other new features. Contact Computer Concepts for upgrade details.

New!

When used with our highly acclaimed Equasor equation generator program (E49+VAT) Impression is the ideal tool for producing technical or mathematical documents.

In order to highlight particular sections of text Impression 2.1 allows sidebars, such as the one used here, to be set as part of the style. The vertical position, thickness and colour can all be controlled from the style editor.

But rather than the more obvious and powerful features, it's the subtle and often overlooked aspects of Impression that make it a delight to use - its speed of operation; the fact that most dialogues can stay on screen while you continue to edit; the care and attention paid to the visual side of the program. Even though the program is now more than a year old it continues to receive glowing reviews.



Impression 2.1 can automatically save your document every 'n' minutes, with options to do this with or without prompting.

a DTP program !

To quote Paul Beverley, editor of Archive magazine. "Thanks to Impression (which I am more and more impressed with every day) I have managed to shorten the time taken to produce the magazine quite considerably."

Although Impression is a word processor, what other word processor, or for that matter DTP program, is able to produce results like this advert.

Impression 2.1
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Impression Junior . . .
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- Outline fonts, any size, any typestyle, any position on the page
- Multi-column work
- Text automatically flows around graphics
- Full graphics capabilities
- Embedded graphics (flows with the text)*
- Simple, intuitive editing with a wide range of key short-cuts
- Retroactive styles and master pages*
- Fine typographic control - kerning, text size, line & paragraph spacing etc to a 72,000 dpi resolution*
- Rules for sidebars, rule-offs, tables*
- Huge range of print options
- Multi-line headers/footers even with graphics
- Draft 'character' mode printing or RISC OS printing
- Full colour control
- Includes enhanced version of SpellMaster, the popular BBC spelling and typing checker

*Not all of these features are available on Impression Junior

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- Full (four) colour separations. So now at last Archimedes owners can output four colour PostScript separations from any Impression document. Essential for anyone producing high quality colour leaflets or adverts. This offers advanced features such as under-colour removal and Adobe recommended screen angles.
- Mail merge program and record sorter utility. Allows simple multi-field records to be seamlessly merged into Impression documents.

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Multi-media Column

Ian Lynch

Following on from the March issue where we were starting to construct a Genesis application, we will add to our single Genesis page and illustrate one or two of the features available. If you are thinking of buying Genesis 2 or up-grading from 1, this should give you an idea of whether or not it is worthwhile. For example, the facility to customise your own windows by specifying whether or not scroll bars etc should be present, is a feature of Genesis 2 not available in 1. I know that a book fully documenting the programming script language is in preparation and should be available next month. When I get my hands on this, I should be able to describe how to make your applications more versatile.

Extra modules will also become available in order to make more specialised work, such as accessing the user port, easier. You could then write a multi-tasking application which controlled various devices in the background while you worked on something else. I have one of Unilab's new A3000 I/O podules which has 3 user ports, one analogue port and a 1 MHz bus, so I expect to do some experimentation with this in the near future. I can recommend this as a solidly constructed add-on to anyone wanting to gain interfacing facilities for an A3000.

Menu page

Back to the application. We have a title page which contains text and a Next button and we need to make a page which will follow on from this. To create a new page, we need to go to the Sound icon on the icon bar and go Menu - Create page. This will create a page the size of the screen and you can then adjust in size. In this case, we will make a simple menu page so that particular routes can be chosen to look at some of the individual sound attributes.

The first task is to give the page a title by Menu - Info - Page - Title. Next, drag out four boxes into which we will enter the menu options. This is done in the same way

as for the first page. Then we give the background the same grey colour as for the first page which makes the whole application have a consistent lay-out. I have also switched off the scroll bars as these are again not needed on this window.

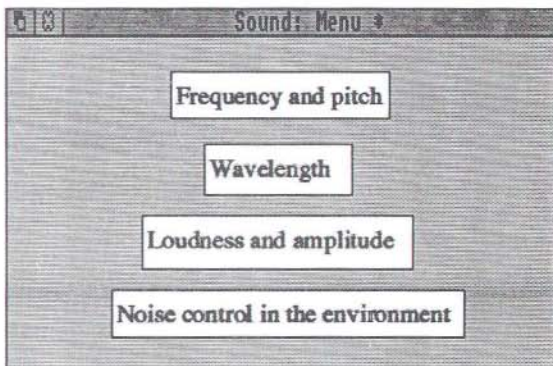
This should give us a page which looks like the illustration below when the menu titles have been entered.

Saving and recalling

To save this page, use Menu - Save and the page will be saved with all its details. Note that this includes the position on the screen so that when the page is called up, it will appear in the position you specified. Double clicking on the Next button that was saved on the title page will now automatically cause the menu page to be displayed. This is because it was the "next page" created in the application. Note that if you double click the Next button with <adjust>, the title page will close leaving only the menu page displayed. This can be particularly important when using machines with limited memory since the more pages displayed, generally, the more memory consumed and you will eventually get a message telling you that there is not enough memory and to close something.

Linking pages

The real power of Genesis comes from its ability to make arbitrary links between pages. What we



need now is to be able to link our menu options to pages which contain more detail about the subject the option refers to. We have four options, so we will need at least four more pages – I will deal with one at a time. The first is 'Frequency and pitch' and so we will make a page with this as the title in the same way as mentioned previously, Sound icon – Menu – Create page. (Incidentally, you will notice that you can't do this with the Browser, only with the Genesis Editor which comes with Genesis.) It is now necessary to adjust the sizes and positions of the windows so that the mouse pointer can be placed in the 'Frequency and pitch' box on the menu page with the 'Frequency and pitch' page in view. Now click <select> in the box and then Menu – Link to, and a dialogue box with a variety of linking tools appears. The first of these is the double click link and this is simply dragged over the 'Frequency and pitch' window and released. It is possible to do more complex links which are, for example, dependent on some condition being satisfied but we will leave this until later. Now that the link is established, double-clicking on the menu box 'Frequency and pitch', will cause the 'Frequency and pitch' page to be displayed.

RISC-OS

Like most RISC-OS operations, linking is quite intuitive, once you have done it once or twice. Indeed, it sounds more complicated in a written description than it is in practice. It is probably pertinent at this point to mention the fact that there are many data types which Genesis understands specifically, Maestro, Euclid, Mogul, Armadeus samples, Draw files and Sprites and it is likely that other types will be catered for in future. In addition to this, any RISC-OS application can be launched from Genesis and so it is possible for several RISC-OS applications to work together forming a unified and comprehensive programming environment.

Help – Any animators?

We now need some information on the 'Frequency and pitch' page. One idea I had was to make a film using !Mogul or !Tween of a vibrating object producing a sound wave at a slow rate and also a quicker rate. If I then used Armadeus

to capture a high pitch and a low pitch sound we have both a visual simulation and an indication of the difference in sound between high and low frequency sounds. Unfortunately, my abilities at animation are not great, so this bit is currently unfinished. Perhaps someone with !Euclid or Tween could have a go at making a film and then I will include it in the application. This should not be too difficult for someone practised in !Euclid or !Tween.

Capturing sounds

Genesis 2 understands Armadeus samples and so, to include them in the application, it is simply a matter of dragging a file into a frame, as with graphics films or text. Obviously, to create your own sounds you need the software and hardware for sound capture. The samples in this month's application were captured using a cheap microphone connected to a Unilab computer interface linked to a Unilab I/O 3000 box on an A3000 with 2Mb RAM running Armadeus. The samples were then saved and transferred to Genesis 2. In fact, if you have enough memory, it is quite feasible to run Armadeus at the same time as Genesis 2 and transfer the files directly. Genesis 2 can play sound samples from disc so that applications will work on 1 Mb machines, but 2Mb is far better and 4Mb will not be wasted.

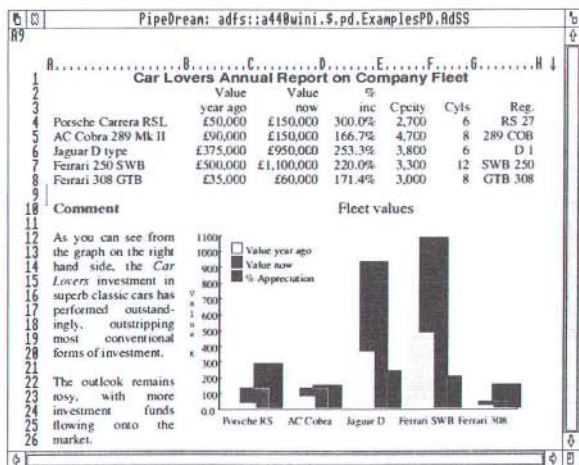
Storage

While a hard disc is not essential, it certainly makes life a lot easier. If you use floppies, make sure that filer windows not currently in use are closed, or you can get into complicated disc swapping (a bug in RISC-OS so I am told). Also, when moving from page to page in Genesis, double click with the right hand button as this closes the previous window saving memory (essential on 1 Mb machines). A 4Mb RAM upgrade for an A3000 is less expensive than a hard disc and would allow you to run the application from a RAM disc. This also has speed advantages.

Sign off

That's all for this month. We can make further progress and introduce some more techniques next month. In the meantime I am exploring the possibilities of accessing interfacing ports using Genesis 2. **A**

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All trademarks acknowledged. The chart in the screen shown above was produced by sending numbers from PipeDream 3 to Linguistix's Presenter 2 and then loading the resulting graph back into PipeDream 3.

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PipeLine

Gerald Fitton

This month I'll start with a few words on Macros. When I started this column, one of the things I expected to happen was that there would be an abundance of macros (just like the short programs which appeared for Wordwise). It didn't happen at first but now I'm beginning to see signs that, whilst I was right in principle, I was wrong on the time scale. Since last month, I have received many ideas for macros but many more of you have asked how to record them.

This is what you do. Hold down <ctrl> and then tap <F> followed by <Y> to start recording; you will be asked for a file name to complete the dialogue box. Then go through the motions (including mouse clicks etc) you want to record. Finally <ctrl-FY> again to switch off the recorder. When you record a macro on disc, please send me a copy for publication, saying what it does.

John Jordan has written to me before; he has been using PipeDream for some years now. I'm sure he won't mind me saying this but he tells me that it is only recently that he realised that options <Ctrl-O> can be changed (several times) whilst you are working on a document. Perhaps you didn't know that either! Anyway, one of the problems that keeps coming up in letters to me is that of choosing a suitable set of options for the type of document in use. For example, with tables (databases, etc) it is better to have Wrap OFF (and Insert on return OFF) but with plain text (wordprocessing) it is better to have Wrap ON. A simple (recorded) macro will switch you from a set of options suitable for plain text to a different set suitable for tables. You can call such a macro 'Table' and, just before you start entering tabular data, double click on the macro file to run it and so change the options.

Interword, Wordwise and other files

Since I included a request for help in transferring Interword files, I have received similar requests for other wordprocessors, spreadsheets, databases and the like. The good news is that I have been sent many discs with programs in BASIC which

convert a wide variety of file formats to PipeDream format files. The bad news is that until I get them all sorted out I won't know what works and what doesn't. If you want to take a chance (or want to help) then send me a blank formatted disc, etc, and I will send you a copy of what I have. If you do have a go then please write me a 'review' for publication. Amongst the programs and explanations I have found many references to 'Liberator'; does anybody have a 'Liberator' and what is it? Don't tell me that the Liberator is a WW2 airplane - I know that!

PipeDream text to !Draw text objects

I have received an interesting program from Lee McGinty (Isle of Wight) which allows you to enter text into PipeDream and then export it to !Draw. !Draw accepts the text as a text object. What makes this program so interesting is that you can introduce bold, italic, superscript, etc, you can insert any outline font at any size from within PipeDream and, when you import the PipeDream file into !Draw, the highlights and font changes are implemented. The copy I have is marked Evaluation Copy, so I am not sure of the status of this program but, if you are interested then write to me and I will forward your letters.

The GripeLine

This is Keith Matthews' idea. Send me your Gripes about how PipeDream works (or doesn't) and I'll collect them together. Think of it as a way of lobbying Colton Software for further improvements! Those of you who received the April 1991 PipeLine disc will have seen Keith's three gripes. This should have been only two because the third one went away when Keith upgraded from version 3.11 to 3.14. Perhaps the improvement was an example of the PUI in action?

On the topic of gripes, Peter Nye has a Z88 and makes printer highlight code 3 send the ASCII 27 to his printer. This means that in his text file he can introduce highlight 3 and follow it by other printer codes (in the main text) so implementing a wide range of printer functions. Perhaps this is the meaning of the phrase 'Extended ...' in the

User Guide. Anyway, Peter reckons that he can't get this to work on the Archimedes, so this is his Gripe "Extending printer codes through highlight 3 doesn't work on the Archimedes".

Alan Highet complains that when he runs a macro which includes both recalculation and printing the printing starts before the recalculation is finished. Has anyone a solution to this? How can PipeDream be made to wait until it has finished before starting printing – it has to be a problem arising out of the multi-tasking nature of RISC-OS.

Help

B Warshavsky from The Netherlands has the EFF Hebrew Outline Font. His problem is how to write from right to left in PipeDream? He would also like to use more of the facilities available on his HPPaintjet printer.

The Local Authority for which Douglas Bell works has taken out a PipeDream 3 licence and they will be using it in Standard/Higher Grade Computing Studies as well as SCOTVEC Modules. If you have anything to offer him or wish to ask him then send me your letters and I will forward them to him.

Peter Nye suggests that if you are using a lot of printer codes which affect vertical alignment, you should prepare the text first adding the printer codes afterwards.

I have a letter from Tony Cowley about finding bits of paperwork he has filed somehow. Using PipeDream, he has reduced his problems to a minimum. His method is to file his incoming correspondence chronologically rather than by subject. He uses PipeDream to record key words in a column (entering the record number or date in another column). When he wants to find a particular piece of paper he sorts the PipeDream database on the field containing the key words and so discovers the date (or document number) of the piece of paper. The rest (as they say) is easy!

David Turner (of D & J Recording Ltd) wants to perform calculations in (hours) minutes and seconds. He has sent me a disc with functions he has built in to handle sums in the scale of 60. If you want to use PipeDream to do sums in scales other than the scale of 10 (or hexadecimal or binary)

then drop me a line and I'll explain David's methods to you.

The National Curriculum keeps coming up in correspondence. Any PipeDream format files containing Attainment Targets and Assessment Recording and Analysis will be most gratefully received by many PipeLine readers.

Dr Peter Davies has sent me a disc with a simple way of dealing with Timetables. If you are interested send me a blank, formatted disc, etc and I'll send you a copy.

The Z88

Thanks for your letters about the Z88. Please keep them coming even though I can't say much about them in a column which is mainly for Archimedes users. I'm surprised how many of you have and use a Z88 for much of your wordprocessing and tabular numeric input with transfer to the Archimedes only for printing. I enjoy the freedom of tapping away producing PipeLine from almost anywhere. (That is, when Jill isn't tapping away at her documents!) I port into the Archimedes to get good quality printouts.

PipeLine

Since I wrote the first PipeLine column for the October 1989 Archive, Paul has printed over 50,000 of my words about the use of Colton Software's PipeDream. Undoubtedly, PipeDream is one of those applications that grow on you as you get to know it better. From what you say in your letters to me, PipeLine has helped many hundreds of you to improve your PipeDream expertise. I think that it is because PipeDream is such a good piece of software that the PipeLine concept has been able to expand to the quarterly discs; I don't know what proportion of you take the PipeLine discs but it must be fairly high. The first disc was issued in July 1990 so the April 1991 disc makes up the first set of four. Thanks for writing to me telling me how interesting, helpful and instructive the information on the discs have been to you. Of course, a lot of these disc based applications have come from you, the Archive readers, so I'd like to thank you all for helping make PipeLine what it has become. By the way, if you make a contribution which is published (on disc – not the Archive magazine) then you get a free copy of the disc

in which your contribution appears; if you've already paid for the disc then you get a £5.00 refund!

PipeLine is not really a user group but it has grown (like Archive) to have a user group 'feel' to it. The 'role model' I have used as my starting point for PipeLine has been Paul's Archive. PipeLine subscribers write to me asking for help and, often, useful help is given (and I enjoy the correspondence). To a large extent, this 'HelpLine' is as successful as it is because I get such strong support from Robert Macmillan of Colton Software but it is also because about two dozen of you PipeLine enthusiasts have taken over some of the queries that are outside my field of expertise. When a problem has been solved by a 'PipeLine Helper', they usually write it up for publication. Once again, if it is published, the writer gets a

free disc. I would like PipeLine to expand its 'HelpLine' (and other! – you tell me what you want) activities more, to do this we need more helpers... You?

In conclusion

Having sent out the fourth disc of the series, I feel as if this is some kind of anniversary. Colton have brought out a much to be desired PipeDream mug – but not to celebrate PipeLine's anniversary! I am working on the possibility that I might acquire one or two for PipeLine. If I do then you might get one as a prize if you do something spectacular enough! Let me know what or who you think deserves a PipeDream mug.

Seriously though. Please keep those letters (or better, discs) coming to Abacus Training. We're relying on you to keep up the excellent quality of PipeLine. **A**

A better Draw: Version 1½

Tord Eriksson

There is always someone who updates the software he is using, just for fun or for the simple reason that he wants more and the producer of the original software doesn't plan to upgrade. Acorn hasn't shown any interest in upgrading Draw, so Jonathan Marten has done it instead.

Installing Draw1½

There are a few differences between !Draw and !Draw1½ to bear in mind when running it from a hard disc: The !Draw1½ !Run file has to check for the system files first and load them, before loading the !Draw1½ itself.

I learned this the hard way but it was enough to load !Draw before !Draw1½ to get the latter working. However, not everyone will have these

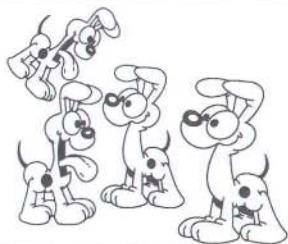
problems, because later copies of !Draw1½ have been updated by Mr Marten.

(From now on, I will refer to !Draw1½ as 'Plus' and the original !Draw as just plain 'Draw'.)

Draw made easy!

The first thing you notice is the different toolbox, in a separate window, and the added buttons "Ortho" and "Zoom". The former makes lines

Homer Simpson's Fan Club



snap to the grid and the latter makes the window zoom in and out between pre-set sizes which you can adjust. This is much quicker and easier because you often need to zoom in to select the lines you have drawn, group them into an entity and then look at the result by zooming out.

To rotate an entire drawing, or part of it, is almost impossible with Draw. With Plus you can, with ease, rotate, inverse or skew to your heart's content, either by a certain number of degrees or by

180 degrees at a time. This makes drawing manipulation much easier. Even text can be manipulated in a similar way but you have to turn the text into a draw file first, using !FontDraw, another handy utility. It is not as powerful as FontFx but very useful anyway.

Homemade italics, anyone?

Naturally, as with Draw, you can mix drawings with text, as you wish. If you feel inclined to skew the text it is very easy to do. On the whole,

Skewed!

Pineapple PAL Coder

Ned Abell

The PAL coder is a useful addition to the Archimedes in that it does two things; it allows you to connect up external equipment to the computer and it lengthens existing monitor leads!

The add-on unit is a plastic box about 11 x 5.5 x 2 cms which has about 30 cms of ribbon cable coming out of one end with a 9 way D connector on the end. This connects to the monitor output socket on the computer. On the other end of the box is another 9 pin socket which now acts as the new monitor socket. There is also a BNC socket which gives PAL coded video and an interlace switch. The whole unit is powered from a plug type power supply.

Output

The output from this unit cannot be fed directly into a TV set aerial socket but if you have a set with a phono plug "AV" video socket or the "SCART" type of socket, you should be able to feed the picture from the coder into the set and view it by switching the set to video or the AV setting. Check with a TV shop that your set can do this and that the SCART connector has an adaptor to connect to the BNC on the coder.

Recording

If you have a video recorder, you can record pictures from the Archimedes onto tape by feeding the recorder video input with the output

Plus is easier to use than Draw, even if it has one or two rough edges. So if a font hasn't got any oblique or italic version you can easily imitate it!

Conclusion

Considering that this is the result of one person's toil in his spare time, it's an amazing product – I do have problems with the drawing as spurious lines sometimes appear for no apparent reason. So I use Draw first, then Plus. I look upon Draw1½ as a complement to Draw, not the ultimate !Draw version but it is worth every penny. Draw1½ is available on Shareware disc N°34 from Norwich Computer Services. It is cheap, powerful and user intuitive – can you beat that? **A**

from the coder. A normal 9 pin colour or monochrome monitor can be used at the same time as you are using the video output.

Quality

The pictures on the video output are of a high standard but they are not as good as on the monitor. This is to be expected as any PAL coding system is trying to squeeze a lot of information into a restricted bandwidth. With the box in circuit, there seems to be no change in the RGB monitor display. If I compare the pictures generated by my Arvis genlock and the Pineapple coder then there is little difference in perceived quality.

Opening the lid!

Inside the box, you will find a variable inductor that can help to control any "hooking" at the top of the coded picture and a variable capacitor which can be used to adjust cross colour or moire patterns to a minimum. It's a very well made product and, for someone starting off with an Archimedes and not able to afford a proper monitor, it's a very useful add-on.

The ability to provide a video output can also be of great use if you want to distribute your Archimedes pictures to another display or use them on video tape. The retail price is £69 + VAT. **A**

Developing a RISC-OS Utility – Part 1

Darren Sillett

My aim in this series of articles is to illustrate how to produce a fairly complex RISC-OS utility with the minimum of hard work. To this end I intend to develop a BASIC library over the coming months which will provide a cushioning layer between you and the window manager.

Standard application files

An application is represented as a directory whose name begins with '!', e.g. !Edit. Inside this directory, the application's files are stored. Some of these files have a special significance in the desktop. These are detailed below:

!Boot – is executed when the desktop Filer first displays the application directory.

!Run – is executed by the desktop Filer when the user double-clicks on the application directory.

!Sprites – contains the main application sprite and any filetype sprites used.

!Help – is executed by the desktop Filer when the user selects Help from the Filer menu.

!RunImage – is the executable code of the main application program.

Templates – is the application's window template file.

Sprites – is the application's private sprite file.

Getting started

The first step in creating a new application is to make a new directory on your working disc which contains the name of the application. Our application is going to be called !Ultimate so create a new directory with that name.

The next step is to start creating some of the files described above. Use !Paint to create a sprite with the same name as the directory. The sprite should be about 68 OS units square which corresponds to a mode 12 sprite 34 pixels wide by 17 pixels high. You can also create a small sprite called sm!ultimate which will be used by the Filer when displaying Full info on the application. This sprite should be 34 OS units square which corresponds to a mode 12 sprite 16 to 19 pixels wide by 9 pixels high.

Save this file as !Sprites inside the newly created application directory.

The next file to create is the !Boot file. This contains the command to load the sprite file into the Wimp sprite area. This is not strictly needed in the case of our application because the desktop Filer does this automatically when no !Boot file exists but, for completeness, and in case of future expansion, we will still create one.

To create the !Boot file, use !Edit to create a new obey file containing the following lines and save it in the application directory.

The !Boot file should contain the following:

```
| >!Boot  
IconSprites <Obey$Dir>.!Sprites
```

Last of the simple files to create is the !Run file. This should be created using !Edit in a similar fashion to that for the !Boot file.

The file should contain the following lines:

```
| >!Run  
IconSprites <Obey$Dir>.!Sprites  
Set Ultimate$Dir <Obey$Dir>  
WimpSlot -min 16k -max 16k  
Run <Ultimate$Dir>.!RunImage
```

The sprite file is loaded again in case the application has been run from the command line. An environment variable called Ultimate\$Dir is set containing a copy of the variable Obey\$Dir. This allows the application to access its application directory once the program itself is running, enabling it to access, for example, the BASIC library which we will be creating.

The WimpSlot command informs the Task Manager of the memory requirements of the application. The last command executes the main application program.

The main application

The !RunImage file contains the main program code which will be developed over the coming months. The program presented here is a bare skeleton which will be fleshed out as more features are incorporated into the application.

All the program manages to do at the moment is initialise itself to the Task Manager and display its icon on the icon bar. To quit the application you need to use the Task Manager window.

```

10 REM >!RunImage
20 LIBRARY "<Ultimate$Dir>.WimpLib"
30 PROCinitialise
40 task_id% = FNinitialise_wimp
    ("Ultimate utility")
50 bar_icon% = FNcreate_bar_icon
    ("!ultimate",bar_icon_left)
60 REPEAT
70 SYS "Wimp_Poll",mask%,
    wimp_block% TO result%
80 CASE result% OF
90   WHEN 17,18 : PROCreceive_
    message(wimp_block%!16)
100 ENDCASE
110 UNTIL finished%
120 PROCclosedown_wimp(task_id%)
130 END

200 DEFPROCinitialise
210 finished% = FALSE
220 mask% = 0
230 ENDPROC

300 DEFPROCreceive_message(message%)
310 CASE message% OF
320   WHEN 0 : finished% = TRUE
330 ENDCASE
340 ENDPROC

```

Line 20 – Initialises the BASIC library.

Line 30 – Calls routine to initialise application variables.

Line 40 – Initialises the application to the Task Manager using one of the WimpLib routines.

Line 50 – Displays the application's icon on the icon bar. If a value of bar_icon_right is given instead of bar_icon_left then the icon will appear on the right hand side of the icon bar.

Lines 60..110 – Main WIMP polling loop. This is where the application gets its chance to interact with the user and other applications. At the moment, it just recognises a quit request from the Task Manager but more will be added later.

Line 120 – Closes down the WIMP parts of the application i.e. removes it from the icon bar.

Lines not explicitly referenced are either unimportant or left for explanation later.

WimpLib

To aid development and provide a useful routine library for everybody the windowing parts of the application will be found in a BASIC library called, appropriately, WimpLib.

```

10 REM >WimpLib
20 DEF FNinitialise_wimp(app_name%)
30 DIM wimp_block% 512
40 SYS "Wimp_Initialise", 200,
    &4B534154, app_name% TO
    version%,task_id%
50 bar_icon_left = -2
60 bar_icon_right = -1
70 =task_id%

100 DEF FNcreate_bar_icon
    (app_name$,position)
110 wimp_block%!0 = position
120 wimp_block%!4 = 0
130 wimp_block%!8 = 0
140 wimp_block%!12 = 0
150 wimp_block%!16 = 68
160 wimp_block%!20 = %100000000000010
170 $(wimp_block% + 24) = app_name$
180 SYS "Wimp_CreateIcon",,
    wimp_block% TO icon%
190 =icon%

200 DEF PROCclosedown_wimp(task_id%)
210 SYS "Wimp_CloseDown", task_id%,
    &4B534154
220 ENDPROC

```

What next?

Next month I hope to embark on the subject of menus and present some easy to use library routines for manipulating them.

I have not decided on the application's precise use yet. I would be keen to hear of any suggestions for features that could be added to the application as it grows. So, if you have any ideas or would find a particular feature handy, please write and tell me and then at least the application will be of use to someone!

I can be contacted either through Archive or at 43, Kingfisher Walk, Ash, Aldershot, Hampshire GU12 6RF. **A**

Crossword Callup 2

Alan Wilburn

This program, aimed at teachers, started life on the BBC B and has been rewritten as a RISC-OS compatible application with an increase in speed, size of the database and the opportunity to use RISC-OS printer drivers.

The program comes on an unprotected disc in a strong vinyl A5 folder with two comprehensive manuals. One manual is from the original BBC B version dealing with the database and the second dealing with the Archimedes enhancements. The second manual assumes you have little knowledge of RISC-OS and explains how to back up the disc, load the program etc – ideal for teachers.

The program

The program makes crosswords, which can be printed out or completed on screen, from a supplied database. The datafiles can be edited and added to – 490 clues are supplied as a start – with a limit of 4,000 clues for a disc-based program.

To get started, you open the directory and double click on the application and it will load, taking over the computer. If you have more than one drive and/or hard disc, the default has to be set from the command line – it can only be run from \$ Dir. on a hard disk. After the title screen, the main menu appears. Six of the options are for managing the database and the others are for constructing a crossword, printer setup and an exit to the desktop.

The database

A clue file has five fields: Clue number, Clue, Answer, Level of difficulty (three choices) and Linked subjects.

All of these fields can be edited and a new clue file can be entered. Bump icons allow you to move through the files easily either singly or in steps of ten and fifty.

The Main Menu options give a choice of hard copies of subjects, clue list linked to a subject and a word list for a subject. The database can be cleared from a menu option if you wish to start from scratch. This is more of a hang over from

the original version which could only handle just over a hundred files on a 40T drive, but is necessary if Cross Number Puzzles are to be made. On the disc are two directories, one for the saved sprite and word file (only one of each which are overwritten each time) and the other containing tools. The tools are to alter clue files from the BBC B version into Archimedes format, merge two files and expand the database to allow more than 4,000 files.

Printer options

Menu option 8 is for setting up the printer. From this, pre-loaded RISC-OS printer drivers can be set for scalable printouts set by a slider icon or the default Epson driver can be chosen. The background colour of the crossword can be chosen from a supplied grey palette – any other colours would have to be dealt with in Paint. There is an option to automatically save a sprite of the crossword grid and a double spaced !Edit file of clues and answers which can be loaded directly into a DTP application. Bump icons are available to set the width of the Edit file and the number of copies to be printed.

Making a crossword

To make a crossword, menu option 1 is taken and you decide whether you are going for a printout or on screen solving. The subjects are then displayed and you choose which you want, followed by the choice of levels of difficulty. The computer loads the relevant clues and you are asked to decide how many clues you want to use. The grid is then built up on screen. If you don't like the grid, the computer will keep redrawing until you are satisfied. If you are solving it on screen, you move around the grid using the cursor keys and the clue appears at the bottom of the screen. The answer is entered and you continue to the next clue. At any time, you can remove an answer.

If the printout option was taken, the grid and clues are saved to disc and the grid/clues/answers are printed out over three pages. The printout was good from the RISC-OS driver for my dot matrix printer but I found the built-in print option printed

across the full 136 columns on my printer and I didn't get round to altering the DIP switches to try it out. If the printer is not connected, the sprite and Edit files are saved before an error message is generated and you can exit the program to use the files in DTP.

In the Archimedes' manual there are sample crossword/number puzzles including some using the mask capabilities of Paint to overlay the grid on a background picture.

Comments

I like the program but I find it an unnecessary complication to have to set the default drive from the command line and who wants to clutter \$ Dir. on a hard disc? I consider it a waste of very limited computer time in school to complete a

crossword on screen and so it seems to me that the most useful part of the program is the DTP aspect. I need to have crosswords on one sheet so that they can be easily photocopied to be used as backup / extension / revision work to various lessons and so I prefer using the two saved files with DTP. Otherwise, it means physical cut and paste to make up one sheet from the printouts. Using 2Mb RAM on an A3000, I found it very easy to make a crossword, exit to the desktop load the two files into Impression and go back and do the next crossword. I experimented with the mask / overlay technique and found that it can give very impressive results with little effort.

Crossword Callup is available from Northern Micromedia for £19 +VAT + £1 p&p (=£26). **A**

WorraCad

Mike Hobart

First, the facts. WorraCad is a fully RISC-OS compatible, "dongle" protected program which runs comfortably on a basic 1Mb machine, at least for simple jobs. It comes with a clear, generously-illustrated, well-printed and quite comprehensive manual which is a little under-indexed. It costs £82.

The program function is, to quote from the manual, "*Computer Aided Draughting (often mistakenly called Computer Aided Design – an entirely different type of application) ... a process whereby the computer is used as a means of simplifying the drafting process*". Its other theme is accuracy: eighteen significant figures. I recently zoomed in on a section of a drawing by a factor of over 700,000! In the laboratory, we use electron microscopes for that.

When loaded, WorraCad displays its icon on the icon bar and when this is clicked, a drawing area, a menu strip and a coordinate window appear. The menus are also available in the standard RISC-OS fashion via the menu button, but, personally, I prefer the "radio buttons" of the menu strip. The top button moves you around the menu hierarchy, announcing your present position and, if clicked, moving you towards the root. Relevant buttons in the sub-menus remain "on" until desel-

ected. This is very handy most of the time. For instance if you are trying to draw lines, but feel the need to zoom in, you can go "down and up" to the zoom menu, perform the zoom, then reverse the route, but you do not have to reselect "lines" in the "Draw" menu, just draw. Occasionally, this feature can lead you astray, for instance when the select menu has been in use, you should make sure that you are not resetting the origin by mistake just because you forgot to switch off this option. My general feeling is that this is a well thought out part of the program.

WorraCad uses three kinds of "primitive": points, straight lines and arcs. Lines can be full feature lines or construction lines which are used to facilitate the drawing process by providing a skeleton. Lines may be drawn parallel, normal or tangential to other lines, or at a specific angle. Circles and arcs constructed by reference to either centre and radius, three points or more complex constructions involving centre, point and angular or distance offset.

Provided that you are drawing fairly standard engineering or building structures, this is all very convenient, but the more complex flowing shapes of, for instance, a boat, Concorde or a Gothic arch must be approached by a series of approximations, which would be tedious.

WorraCad has provision for up to sixteen drawing layers. The layers may be hidden (after a redraw), or can be used as guides for work on the current layer. Colours for each element in a drawing may be set from within the layer control and are not fixed to each layer. There are also options to hide construction points and lines (and most other output categories) from the final product, without having to delete them. There is full control over paper size. Orthogonal (square) and isometric (diamond) grids are supported. Various transformations of bits of the drawing are provided for, e.g. mirror about any line, stretch, rotate. The facilities for multiple replication of objects with offsets or rotations programmed would make designing, say, a rack-and-pinion system a doddle.

The behaviour of the grid feature can sometimes be a little disconcerting. The basic system is very good, allowing grid divisions to be at any pitch you like, though twelfths are not supported, so Imperial measures have to be "fudged". Sometimes, the grid disappears if the screen magnification is wrong. It is still there, and objects still attach themselves to it, but you need a second window at a different magnification to see it. Incidentally, the zoom system is exquisite, offering not just numerical zooms, but also fit to page and a "zoom to rubber banded area" option. Also disconcerting can be the appearance of the screen if an action, especially a deletion, has been done: nothing seems to have happened. This is due to the use of a command-driven re-drawing system. The purpose is to eliminate the long waits with which most readers will be familiar when using !Draw; if there are many objects on the screen, the redrawing can be very slow. WorraCad avoids this, and a quick jab at the "r" key is all that is needed to make apparent the amendments (deletions etc) since the last redraw. Insertions appear at once.

What is essential, if you are to get the best out of WorraCad, is that you should know what you are aiming at. The dimensions and layout should be clear in your mind, as should the approach you are going to use to construct your drawing. The example in the manual, a drawing (a full-feature engineering drawing) of an audio cassette is a very good example of the approach needed. Draw a rectangular outline, then fillet (round) the corn-

ers on a 3 mm arc, then centre the spools, draw construction circles and lines appropriate for the "teeth", draw a tooth, and its share of the circle, then replicate it to fill, then the spindle holes, the raised area (hatched), the tape window and finally the body screws. You could draw a perfectly recognisable cassette in !Draw more quickly, but with this drawing you could imagine making one in the workshop.

The example makes use of known facts about cassettes. You could quite easily design your own cassette with different dimensions, drive mechanisms etc. on a fairly freehand basis. If you want to draw a circle to fit between two angled lines at a given point, you would not need to know the exact diameter of a circle required, just the lines and the point. WorraCad will work out the right size circle and will dimension your drawing for you. You can label your design with a special font of technical appearance (like the ones you buy as stencils for a drawing pen). If you need the drawing in a less technical format, WorraCad will save it as a !Draw file, available for outline font text, Bezier curve constructions, and colour fills. WorraCad provides for hatches, which !Draw does not. Incidentally, each segment of line (i.e. between clicks) is an object in WorraCad and its !Draw output, so a big drawing can get very big in drawing demands. Printing is by RISC-OS printer drivers or a built-in HPGL plotter driver. Input is allowed from DXF using an importer program whose icon will delight aficionados of "The Hitch-Hikers Guide to the Universe". There is no facility for !Draw input as Bezier curves and outline fonts are not supported and position information would need to be rounded.

Overall, this is a very professional package. It essentially aims to make anyone look like a skilled draughtsman (at least to my untrained eye) and it provides the tools to take the drudge out of making good technical drawings. It is not a package which removes the need to think and plan, nor is it to be thought of as a better version of !Draw (there is one if those on Shareware 34) but it does allow the construction of accurate drawings by those who lack the skill with pen and paper, and would doubtless accelerate the work of a skilled draughtsman. **A**

Using the PC Emulator – Part 9

Richard Forster

The PC emulator does a very good job of pretending to be a real IBM compatible but when you look behind the facade, it is still an Archimedes. You cannot use many of the Archimedes functions when under emulation but there are a few things we can do which a user of a real PC cannot do. You can of course alter how much memory is available to you by plugging and unplugging modules but I cannot think of any situations where it would be preferable to having less memory so I will skirt around this 'facility'.

Sound is, of course, the one thing the PC emulator falls down on. Audio effects on standard PCs are not amazing but, nevertheless, some programs do attempt to use them and hearing the racket that is usually produced by the emulator calls for one thing – the ability to turn it off. Software which has musical effects will usually have an off option which you can use but sounds which usually accompany errors are unstoppable.

To turn the sound off you need to issue the command:

```
*SPEAKER OFF
```

before loading in the emulator. If you are likely to always want the sound off, you can place this command in the !Run file of your !PC directory. If you do this, make sure that you place it before the line which looks like:

```
Run <PCe$Dir>.Genboot.!RunImage
```

or the command will never be executed.

Alternatively, if you still want the sound, you could experiment with other sound voices. The emulator picks the voice in the voices list which is set to channel 1 and uses it when producing the sounds. Changing the sound voice used is not quite as easy as just typing in:

```
*CHANNELVOICE 1 5 (or something similar)
```

This is because some of the files which are run before the emulator is operational, unplug various modules in order to give more memory and this includes modules like Stringlib and Percussion. If

you want to use sounds from these modules (personally, I think some of them work better when anything more than a single beep is produced), you must alter the file !Modules in the Genboot directory of !PC and place a ! character before name of the module you want to use. If you want to use a sound voice from a module stored in RAM (i.e. loaded in) you must change the file !Config in the same directory, changing the Y to a N after the line about removing all RAM modules.

Hard disc users have a couple of things they can do. Firstly, you can write protect your PC hard disc drive, which might at some stage be useful. To do this you simply find the file called Drive_n (where n is the letter of the PC hard disc drive) in Archimedes mode, and alter its access codes. This can be done most easily from the desktop where all you have to do is make sure the "File has owner write-access" is not set.

You can also set up several PC hard disc drives. The easiest way of doing this is, once you have created the first one, which will be called Drive_C, is to rename it Drive_D and then create another Drive_C using the program. It is also necessary to change the file !Run2 in !PC (or the file !SCSIRun2 if you use a SCSI drive) to tell the computer that you have two usable PC hard disc drives. All this applies to version 1.33, and so if you have an earlier version you might have to fiddle about a bit.

You want to edit the necessary file to include the new path name of the new drive and you want to place it on the same line as the previous path for the Drive_C file. If the files were hidden on your hard disc in the directory PC, off from the root then you would be changing a line like:

```
<PCe$Dir>.!RunImage <PCe$Dir>.  
ROM adfs::4.$PC.Drive_C
```

to

```
<PCe$Dir>.!RunImage <PCe$Dir>.  
ROM adfs::4.$PC.Drive_C  
adfs::4.$Drive_D
```

Once you have done this you should load up the emulator and run the file FDISK. You will notice that there is an option 5 to "Select next fixed disk drive" which is not available if you only have one PC hard disk drive set up. You can use it to toggle between the two drives. When you have selected the new one you should select option 1. Do not worry if you are on the wrong drive when you press it, you will get an error and you can return to the menu and select the next one. Once you have set up the drive you should execute a format command.

If you have not already set up any hard disk drives, the task is simple. In order to set up both discs, and to install the system files on drive C so that you can boot up from it, you simply type in (and answer the prompts):

```
FORMAT C: \s FORMAT D:
```

If you have already set up a hard disk drive and have just created another, check which one is already formatted. To do this, simply check drive C and D in turn, taking a catalogue of each. This should reveal which is the existing one, and you can format the other. Remember that if you have already had a drive set up, you must make sure you format the other one or you could lose your data.

These two things that we can do on a hard disk drive system are very useful, especially when they are used together. I have my system set up with a 512K drive C and a 5Mbytes drive D. All my boot files are on drive C, including a couple of utilities I find useful, and there is an autoexec.bat file set up with the single command:

```
D:
```

The effect of this is that when I load up the PC emulator, the system files are loaded from drive C and the system switches straight into drive D. Drive C has been write protected as mentioned before and so my system files are safe from accidental deletion. They are also quickly accessible from wherever I am on Drive D. If I worried about viruses, which I do not, I would be reasonably safe in the knowledge that they would find it extremely difficult to get at those system files,

because the source of their protection is from the Archimedes, not the PC.

On this Drive C I have two files from the original boot disc which I personally find invaluable, but which I have not yet mentioned. They are PUTFILE.EXE and GETFILE.EXE, and they are the only files on the boot disc which you would be unlikely to find on a real PC's disk. They allow you to transfer files from the PC emulator to the Archimedes. There are now a few programs for the desktop which allow you to read PC formatted discs and a couple allow you to save data to them, but the ONLY way to do this from the PC end is with these two files.

The syntax of the two commands is the same. They both require a source filename and a destination filename. GETFILE.EXE takes a file from the Archimedes and transfers it to the PC, and PUTFILE.EXE takes a file from the PC and places it on the Archimedes. When using them it is best to include full pathnames for the Archimedes part although, for the PC part, the filename will suffice.

A use of the two programs might be to transfer a text file between the two sources. So if I had the file CORR91 in the directory \$.1WP.DOC.LETTERS of my Archimedes hard disk, and I wanted to transfer it to the current directory of the PC emulator calling it CORR91.TXT, I would type in:

```
GETFILE :4.$$.1WP.DOC.LETTERS.
```

```
CORR91 CORR91.TXT
```

If I then edited it and wanted to place it back where it came from I would type in:

```
PUTFILE CORR91.TXT :4.$$.1WP.DOC  
.LETTERS.CORR91
```

You have to be careful when using both of these commands because they will give no warning if they have to overwrite an existing file. You might also run into difficulties if you are trying to transfer data on a single drive machine as the utilities will not give you a prompt to change between you PC and Archimedes disc. In these cases the best option is to set up a ramdisk as shown in parts 3 and 6 of this series and use this as the PC disk.

As a demonstration of what we have learned so far and to demonstrate GETFILE, we shall create a batch file using edlin which will allow us to get multiple files. As added protection, the program will not let you use a filename if there already exists a file with the same name. To use it you simply type in GET followed by an even number of parameters, alternatively the file to get and the file to save, e.g.

```
GET :4.$$.LET1 1.TXT :4.$$.LET2
      2.TXT :4.$$.LET3 3.TXT
```

So here it is, a batch file to be called GET.BAT

```
echo off
:start
if "%1"="" goto end
if "%2"="" goto nosecond
```

```
if exist %2 goto secexist
getfile %1 %2
if errorlevel 1 goto end
echo File %1 got and saved as
                                     file %2

shift
shift
goto start
:secexist
echo Second file already exists!
(I will not overwrite)

goto end
:nosecond
echo You must give me a file name
                                     to save to!

goto end
:end A
```

Shareware Disc N°38

Alan Highet

All the programs have been tested on a standard A310 and on a 4 Mbyte A410 with ARM3 and SCSI hard drive. Unless otherwise stated, all programs ran on both machines.

Address

This is a multi-tasking address book which comes with a data file of useful addresses. A data file can be loaded by double clicking or dragging to the icon bar in the usual manner. Alternatively, you can merge files by dragging them to the open address window. There is space for the name, address, telephone numbers and remarks. Clicking <menu> on the window gives access to the usual choices of add, delete, goto, print, save, sort and, of course, search. A search will display the cards found in a separate window but this can only be saved as a separate file and not printed. For this you need to go to the main window and match up the cards or save the found file and reload it as a main file.

The print option does not work with my laser printer as no page feed is sent but I see no reason why it won't work with an ordinary dot matrix printer. The search routine is fast but the sort routine isn't, which the author admits to, but I don't

think that is a great handicap as I don't really see any great need for regular sorting.

Graphdraw

This program allows you to generate graphs in a multi-tasking window. Data may be entered in various forms. A separate edit window is shown on screen where the x/y coordinates may be entered manually up to a maximum of 40 pairs. You can also drag files from Edit or Pipedream using CSV format although Tab files will also load. Clicking <menu> on the edit window opens an option menu allowing you to clear the data or save it as a data file.

Plotting the graph is also done from this menu, and a second window opens displaying the graph with the axes automatically scaled and labelled in Trinity outline font. The points are displayed as small boxes and options are available to plot the best fit straight line, least square fit to a parabolic equation, a polynomial fit for orders 3 to 6 and a smooth cubic spline through all the data points.

A further sub-menu allows you to print the data from each of these calculations along with the individual errors for each point. You can also print the graph, save it as a screenfile or save it as a drawfile. Many of the options can be altered

such as the legend size and the graph title and other items could be added in Draw.

Overall, this is a very well written program which does everything asked of it. Hopefully, the author will continue to develop it allowing more data points, more types of data entry and different types of graph.

Curves

A short program to draw curves which unfortunately has no documentation and not even any REM statements to help you so, not knowing the values to enter I managed to produce only a straight line.

Chain

This is a game for 2, 3 or 4 players played on an eight by eight grid. Each player can be human or computer and the computer has varying skill levels. The idea of the game is to place one of your tiles on an empty square or on a square already occupied by yourself. Each square has a critical limit and when that is reached the square 'explodes'. This means that the square loses all its tiles and each adjacent square gains one tile of a similar colour to the exploded tile. This of course could very well take that tile over its critical limit and so it in turn will 'explode' in a chain reaction, hence the name.

The board is nicely presented and works very well and my only complaint is the endgame. Try as I might, when playing with two human players, I cannot get the game to end and I wonder if the author has ever finished it. Once all the squares are of one colour, the game should end but this doesn't happen and the chain reaction continues for ever. I assume this to be a bug as playing against the computer works fine.

Apart from this niggle, I think it a good game but feel it would be even better turned into a multi-tasking desktop game.

Tetris

This is a good implementation of the classic game with good graphics and changing background pictures. For the few people who don't know the game, the idea is to position random shaped blocks, falling down the screen, in a neat fashion at the bottom. If a line is completed, with no gaps,

it disappears and all the other blocks move down one. The only controls are to rotate the block and move it left to right. Having played the game before, I didn't bother to read the !ReadMe file and consequently didn't realise there were options to pause the game, display the number of blocks used, display the next block and even title the many background pictures. So please take note, always read any documentation!

Calendar

This displays a neat window with the current month displayed. Two arrow are provided to step forward or backwards month by month and you can change the format to read Mon-Sun or Sun-Sat but that is all. I think it would have been nice to be able to mark some day with appointments but maybe the alarm clock provided free with the Archimedes does all that for you.

Clipboard

This module allows you to copy and paste between writeable icons using some Ctrl keys. An example of a writeable icon is the Palette save on the icon bar. You can copy and paste or cut and paste between any icons in any program but I'm not actually sure if that is much use.

Fontfix

A lot of commercial outline fonts will not load into FontEd and this program strips out all the surplus data from an outline font allowing you to load it. The author says the program is designed to let you change the name of the font to the original, i.e. Trinity to Times, but it does allow you to alter the fonts themselves in FontEd which raises the question of breaking copyright.

Italiciser

Double clicking on this application produces a small window in which you can alter the angle you require then any Draw file dragged to the window can be dragged back to Draw with slope of the selected angle.

Positive or negative angle are catered for and it works very well giving some interesting effects.

Menon

Menon is an icon on the desktop, or on the icon bar, which acts like a filer allowing you easy access to files that may be hidden on your hard

disc. Any file or application can be dropped onto the icon and this will then be displayed when clicking <menu> over the icon and sub-menus can be set up in a similar manner to ADFS. The program worked well on most things I tried but didn't work properly with Impression files as it loaded a second copy of the program.

Modes

This program acts in a similar manner to the palette icon giving you easy access to other modes than 12, 15 or 20 with an editable file for the modes you want to use. Unfortunately, I couldn't get it to work. Firstly the program demands a RAM filing system to be set which it loads with files and then, when selecting a mode, an error message appears 'bad wimp mode'. I'm not sure

what is wrong and there is no proper help file to explain what the files in ram actually do.

Fontselect

This program sits inside your !Font directory and, instead of installing all the fonts, it lets you select only the groups of fonts you require. It was written because of the large number of fonts available and the inability of some programs to handle them. I followed the instructions and finally got the program to run and a nice window appeared allowing me to select various fonts but not all of them! Although I had ticked Trinity font, Impression told me it couldn't find that font and my !boot file which installs the fonts and Impression no longer worked, so I think I'll stick with my old system. **A**

Presenter Story

Ned Abell

Presenter Story (v.1.20) is not the sort of software which will appeal to all Archimedes users but those of us who need to communicate will wonder why we never had anything as comprehensive as it before – and whilst blessing it – will curse its failings!

It is designed to allow the Archimedes to become a mode 12, sixteen colour presentation tool so that you can hook it up to a video projector or large monitor. You insert a disc and step your way through a presentation containing text, logos, maps and sprites by pressing the space bar, each press giving you a new screen full of information in different fonts, in different colours, with different backgrounds etc. Pie charts, line and bar charts can be displayed and sprite animation is also possible – you can even set it up to sequence automatically.

Many video projectors, (not the Sony 2040), will hook up directly to the Arc in place of the monitor. The business person can prepare material and even, at the last minute, change it or re-order it. Thus, it is also very useful to teachers, trainers and sales people who can throw the overhead projector acetates away and score more than a few points with clearer, up to the minute presentations.

Another great plus point of Presenter Story is allowing the use of frameworks to generate a house style in all subsequent presentations.

Video production

I've mentioned before in Archive that the Amiga is the currently preferred computer in semi-professional video captioning and animation circles. Presenter Story puts the Archimedes firmly in contention as a new video tool with existing hardware packages of genlock and digitiser. The presentations that are created with Presenter Story can be used by the genlock to affect any video going through it and function key f12 is used to toggle the overlay. If you use the Wild Vision 400 genlock, the manual says the software can trigger fade in and out, override the genlock and provide a buffered I²C bus as well as four GPI interfaces (for triggering a vision mixer etc). Some of these options, however, have yet to be implemented.

I use an ArVis S-VHS genlock and have found no incompatibility but the shadow key is not supported – I'm working on it! There are also keys that will provide interlace, an edge colour to the text and there is also a drop-shadow toggle. These effects are shown after the screen is re-drawn and can help the display when it is overlaid on live video. The Watford digitizer is supported and will

Presenter Story

allow you to load images as backgrounds into the map/logo editor for using as templates.

In television, this use of graphics costs two arms and a leg and is time consuming. With my Archimedes and this software, it is affordable, easy to do and, with careful choice of text and background colours, very good displays can be achieved.

Opening the box

Presenter Story comes with a well printed and laid out manual of a hundred A5 pages in a ring binder which also contains the one disc of software in a plastic holder. Apart from Presenter Story, the disc also contains two other applications called !PSfont and !PSroll. The disc also has a !Font file containing the Manager as well as Optima, Garamond and AmTypeWrit fonts and a sprite file as well as XAT's Video module.

The structure of !PStory

On loading the application for the first time, the demo pages are also loaded and these give a very good idea of the power of the software and provide examples of layout that you can change for your own presentations. The manual also contains worked examples.

Paging is the key to the software as each page can contain a series of different items and after it has finished, you move on to the next page. Within each page a series of items can be drawn or animated and it is possible to include a user operated trigger on each item. Thus, if you had a series of, say, items and their costs, pressing a key would allow the next to appear below the one already on screen. This is great for animating text to a sound track or during a lecture. The components of the page can be:

- Text in different colours, mixed fonts and super and subscript with alternative (top bit) characters like ©.
- Pie Charts – 2D or 3D with removable segments
- Line charts in a variety of styles
- Sprites from a pool. These alone can be animated
- Beeps to warn you to press a key
- Logos drawn in the editor or traces which can be made around an image imported from the digitizer

- Maps drawn in the editor (two colour large area logos)
- Effects to determine how the page appears such as boxwipes, bounces and patterns
- Labels – to label charts maps and graphs
- Changes to the palette
- Triggers to put a pause in the display
- Four pre-set arrows as a graphic
- Border to set the screen edge colour
- Clear to clear the screen
- Background to set the back colour (which can be transparent)

These components can be in a sequence of different items which are drawn one after the other. Thus on one page it would be possible to, say, slide a sprite of a blue rectangle in over a transparent background, pop text over it, animate it on cue and then add a logo. Good eh!

Structure

The structure of the Presenter Story main application requires you to put your pages, logos and charts in three directories inside the application rather than in external directories although the sprite and palette directory is external. Each presentation you produce is copied onto a new disc from the master, so that each has its own copy of Presenter Story, and the requisite items for that presentation are imported from other discs or specially created.

There is a password security system which you may invoke to prevent other people altering the data. It is possible to output the screens directly to a printer or via a screensave file.

PSroll

Having created your pages the application Presenter Roll allows you to join them together in a particular order, the number of pages depending on the amount of memory available. My 1M machine manages four. The pages are joined bottom to top in a loop and the speed and direction can be altered. This can be very eye catching if not overdone. If you were a travel agent, one of these displays in the window could contain a lot of late booking holidays – estate agents could put houses for sale in a loop. Public buildings could create information displays which did not have the usual page wait associated with teletext-like

systems. This also allows me to create a vertical "roller" of credits for the end of a video. I do this already as a "crawler" with XAT's Video Utilities.

PSfont

This application allows you to change and to re-scale the seven fonts used in !PStory. I keep a font pool on floppy one, and running its font manager makes all the pool available for use. If you save any changes to the fonts, and if the new fonts required are not on the Presenter Story disc, running !PStory after restarting the computer will cause the application to hang, so the fonts required must be copied to each presentation disc. This can use up a lot of space. You must remember that font display on a 1M machine is a compromise between speed and available memory. Sensible recommendations for FontMax sizes are included in the manual but I would also recommend reading the !Readme file you may have with your existing font manager. This file is not included on the PStory disc. Remember that you can only configure to Font Max2 and 3 to 250 pixels.

This application does the job but there is no on screen representation of how your rescaled font will look thus you have to approximate and then go into !PStory to see what it looks like and then come back to !PSfont to change things. As the applications are not multi-tasking, this is bad news if you are trying to create a title font on screen to approximate to a font on some sales literature and this wastes time.

Limitations

The first note of caution that I would sound is that Presenter Story is not multi-tasking as it takes over the whole computer to do its job but there are ways you can quit back to the desktop. I personally like the desktop environment and want to refer to other files whilst working with Presenter Story. More seriously, you can sometimes use the exit option from PStory and find that the computer locks up and needs resetting.

The second caveat is that its component editor for graphics is 'unique'. I have yet to find a way of importing Drawfiles into the package which is a

shame as I used to use this system in my videos and would like to update my archives. I am not really in favour of re-inventing the wheel especially as the manual commends you to edit any sprites you are using with !Paint or !Artisan and you can use conventional palette files.

There are some things I don't like about the application structure. The filing references to logos, sprites and pages are purely numerical, although pages can be given names to identify them as you create them and you can page shuffle using these names. This requires a comprehensive pencil and paper filing system of the elements used so that you can keep track of items for future use – it would be so easy for the page name you specify to be appended to the number thus passing this title to the disc filing window and still retaining a numerical sequence.

The colour selection in some parts of the page designer asks for input from 0-9 and A-F whilst background colour selection is in the range 0-16. This needs standardising. If you want to choose 2D or 3D for a pie chart, you are asked to input either of the numbers "1" or "2" instead of the more logical "2" or "3" – pedantic points, I know, but points that could make the package use simpler.

That's most of the moans out of the way. Designing pages of information is fairly easy. A new page is selected, the type of input required is selected from a menu and this input can then be positioned on the page. Sensibly for items like text, the middle mouse button centres the line of characters. This is great for centering lots of subtitles in an overlay box – you just write down the co-ordinates of the first line of text and keep the same "y" value for different pages.

Positioning manually, I found the box that represents the characters seemed smaller than the actual line of text and two or three goes were required to get it just right. I would like to see the provision of a grid overlay toggle as lining up different lines of text by eye in my case is about as good as my plastering! I did find that larger sizes of text did tend to "vignette" or slightly cut off at the bottom.

Conclusions

If you present information to others or are involved in video, you need software like this. There is little choice in this area of the market and while Presenter Story does have shortcomings, these can be worked round. The font presentation on screen is very good and the quality of imports help the user to create presentations that can have a distinctive house style to match existing styles used by a company. I would prefer a DTP feel to create the pages but author Paul Reuvers of XAT is doing the usual balancing act between the quality of output and ease of use versus 1M machine memory limitations.

In my view Presenter Story is not yet the definitive presentation package for the Archimedes but XAT and Linguinity have made a good first attempt. I would expect to see what I now regard as a highly rated package become even better to compliment its "business" price (as well as an upgrade path for us pioneers). I look forward in hope to a RISC-OS compliant version of Presenter Story 2 – especially now that software authors are seeing the power of other packages in a WIMP environment.

Presenter Story (v1.20) by X-Ample Technology is £169 +VAT from Linguinity. **A**

Design Concepts' Programs

Robert Christmas

The Design Concepts programs are all priced between £1.00 and £2.00. They are multi-tasking RISC-OS applications, although Freehand puts a window over the desktop for time-critical drawing operations. Each application comes with a page or so of A5 documentation and includes a !Help file.

The programs are mostly tools to support larger applications. Some of the jobs these programs do could be done with other programs but they might still be attractive to people with only (only!) 1M of memory because these programs are memory frugal, 32K seems typical. The versions I saw were written in BASIC and even when I was not excited by the program, it was interesting to be able to look at the code and see how it was done.

FreeHand: With most painting programs you can hold down <select> to create a free hand drawing. Using this program feels like that, but it creates a draw file. You can set a high scanning speed for smooth curves with lots of points or lower for less points and therefore smaller files. The draw file consists of straight line segments and it can be reloaded and edited but FreeHand does not like ordinary Draw files. Some artistic ability is a benefit. £2.00.

Shade: Impression comes with a very useful Draw file called GradTint with a rectangle shaded from black to white in finer gradations than any-

thing you could normally produce with Draw. This program creates similar rectangles between any two colours. Of course it is mapped onto the screen palette when displayed on the screen. For anything but greys you would need a good quality colour printer to see the effect properly. £1.50.

Fontlist: This outputs a draw file with examples of all your fonts. Each line says something like 'This is Hobart'. It always lists all your fonts. £1.50.

Back2: This should provide a menu for the desktop background allowing you to load applications. Unfortunately 'It requires considerable setting up before it can be useful...', you have to modify application boot files (e.g. using Edit). It also allows a repeated sprite background. £2.00.

Speedo: This is a like 'Usage' on Applications 2 except that it gives numeric output. I enjoyed using this to discover the effect different applications had. £1.00.

Muncher: Muncher produces a constantly changing pattern in a window. This is a useful program if your Archimedes runs too fast. £1.00.

KeyCap: This allows you to preview an outline font at any size. It uses a constant sized window so you only see the bottoms of large characters. £1.50.

CountWord: Drag a text file to this application and it will count the words and the paragraphs. It

can handle First Word Plus files as well as normal text. £1.00.

Mouse: Sometimes you want the pointer to move quickly, at other times you want a more sensitive response. This program adjusts the speed of the

mouse as you move it, so slow movements are very accurate and fast movements cause the pointer to leap around the screen. You can adjust the levels at which the pointer speed changes. The program does not tinker with the interrupts. £1.00. **A**

Design Concepts' Fonts

Robert Christmas

If you noticed the Design Concepts' advertisement in Archive 4.6 p17 you probably suspected a rip-off. Who sells 'proper' outline fonts for £1.50? More from curiosity than expectation, I sent for two fonts which arrived within a week. A couple of weeks later Paul sent me the whole range to review.

These are proper outline fonts, you can add them to your !Fonts directory or use them from the !MoreFonts directory supplied on the disk.

Appearance

There is a wide variety of styles from 5th century

Celtic, through Goffik (Christmas card writing) to LCD (calculators and 70's advertisers trying to look modern) and Ainslie (a pleasant modern script style). The more neutral styles like Sparta and Hobart will probably be the most used. None of the fonts is suitable for large quantities of text but they could be used for headlines or posters.

Used to excess, these fonts could produce documents which would frighten granny (if granny is a typographer). However some jobs do need a special look and one of these distinctive fonts could well be suitable. At this price, you can afford to use them with discretion.

EXAMPLE

Acropolis

Characters 156 Scaffolding 18
U/L/case scaled down

Example

Ainslie

Characters 185 Scaffolding 116
U/L/case different

example

Celtic

Characters 169 Scaffolding 112
U/L/case all but 2 identical

EXAMPLE

Goffik

Characters 101 Scaffolding 90
U/L/case scaled down

EXAMPLE

Hobart

Characters 177 Scaffolding 116
U/L/case identical

EXAMPLE

Khut

Characters 170 Scaffolding 113
U/L/case identical

EXAMPLE

LCD

Characters 221 Scaffolding 191
U/L/case 6 different rest scaled

EXAMPLE

Sparta

Characters 167 Scaffolding 108
U/L/case scaled down

EXAMPLE

Subway

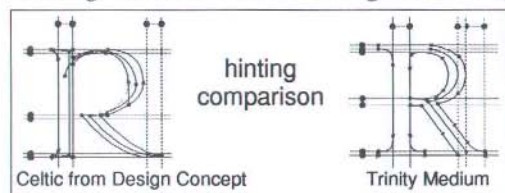
Characters 170 Scaffolding 107
U/L/case scaled down

The table shows how many characters are defined in each font, and how many have scaffolding. FontFix from Shareware 38 was used to find these statistics. FontFix does not measure quality and it counts the logo which many designers include as a normal character. The table also compares the upper and lower case characters.

Quality

When a font is displayed on the screen or printed it must be converted to patterns of pixels. The pixels will not match the outline exactly. If the letters are large, we do not usually notice any problems but if the letters are small, they can lack clarity and symmetry. To improve the quality of the letters, designers add 'hinting' data called 'skeletons' and 'scaffolding' (grim names!) to the font. Skeletons ensure that thin lines will always be at least one pixel wide, so they do not disappear. Scaffolding ensures that the letters have similar dimensions and that similar parts of the letter create similar patterns of pixels.

Creating skeletons and scaffolding takes time,



which is why good quality fonts are usually expensive. I do not have any technical documentation on the various types of scaffolding lines,

Careware Disc N°7

John Oversby

Careware Disc N°7 is packed with applications and examples. Most come with Help text files which should be read before use.

!DrawLink

Using a text area in !Draw can be tedious since effects such as right, left or full justification, number of columns, font type, can only be edited in !Edit. This means that !Draw should be used alongside !Edit if text areas are required. !Draw-link allows text, in ASCII format, to be linked to a standard header for use in !Draw. The package is used from the Command Line (F12 – star prompt) and the input file and output file names must be specified. I found this unhelpful and prefer to use pre-prepared text files, under such names as 'left-just' or '2-col' in clear directories.

but I compared the Design Concepts' fonts with the Trinity font used to print this article. In most cases, the Design Concepts' hinting appeared to be less detailed and some seemed very limited but it is hard to tell how much scaffolding is desirable for less 'regular' styles. I felt that the fonts printed acceptably in small sizes.

Designers can save time by not defining all the characters. It is possible to have 224 definitions (ASCII 32–255). To be useful, a font must have definitions for characters 32–126 because these are the standard characters available from the keyboard. Characters 128–255 include alternative vowels with accents, umlauts, ligatures and special symbols so, for most purposes, a few gaps here will not matter very much. The Trinity font has 208 defined characters of which 157 have scaffolding. All the Design Concepts' fonts have all the characters 32–126 and most have about 170 definitions altogether.

Some of the Design Concepts' fonts have the same definitions for upper and lower case letters and, in others, the lower case is just the upper case reduced in size. Only Ainslie and LCD have clearly distinguished upper and lower case.

You need Font Manager 2.42 or later to use these fonts – none has a Postscript equivalent. **A**

!DrawCGM

!DrawCGM is a Utility for converting Acorn Draw files to CGM Computer Graphics Metafiles which may be imported into Lotus FreeLance and other Graphics tools on the PC. I did not have an opportunity to test this.

!FontEd

After using this to modify some of the characters in one of my outline fonts, I realised how time-consuming the production of a new font would be. Use it to convert a character into a !Draw path, so that it can be rotated. Even better, use !Draw1½ (S/W 34) which does the job very well and with greater ease.

!MakeGIF and !Translator

!Translator converts sprites from many formats, including Amiga, Atari and ProArtisan compres-

sed forms, and in different modes, to sprites for use in RISC-OS applications, in any mode you can normally use. Options include changing the palette, saving part of a sprite, enlarging or producing a mirror image. It will also take compressed forms such as GIF (Graphics Interchange Format) and convert these into Archimedes sprites. !MakeGIF does the change in compression and type. Typically, a sprite can be reduced to half its size in GIF format, allowing more pictures per disc. Many bulletin boards and PD libraries use GIF files to pack more information into each file.

BFonts

Fed up with the boring Archimedes font as used in the desktop? Here are twelve new ones including IBM and Giraffe (tall and thin!).

NEC

This contains a printer driver for the NEC P2200 printer for use in Pipedream, which I was unable to try, and !Chars, a neat application with its own window which helps you to choose characters not available from the keyboard such as © and µ and not defined on the keyboard when using word-processors or DTP programs. With the pointer over the character, press <select> or <shift> to enter the character.

Symbol

A Greek/Symbols outline font.

!FileUtils

FileUtils installs an icon on the iconbar. When you drag a file to the icon, a menu will pop up which lets you perform a * command using the filename of the file you dragged to the icon. Commands include *ScreenLoad for sprites, change file type, open application directories, stamp with today's date. This is useful if you are not sure about using the Command Line or if the file has a long path name which would be tedious to type out in full.

!MultiPrint

Drag files to this to be printed without your constant attention. Will multitask on text files but !Draw files and sprites need to 'see' !Draw or !Paint first so the printing takes over the machine.

!PCDir

This only works on 720K PC formatted discs but it does it pretty well. A disc icon appears on the

icon bar. Place a PC disc in the drive and click <select>. A directory window (but not in the normal window colours) appears with the PC files, and extensions, in an Archimedes look-alike way. Files can be moved from this window, into RAM, onto a hard disc, onto an ADFS floppy, with sensible choice of filetypes. For example, a PC file with the extension .DOC will be converted into a text file on an ADFS disc. Files can also be dragged into applications. Take a PC disc with a text file, load the file into !Edit, work on it, then save the changed file back to the PC disc. This version of !PCDir will not allow formatting. I have used this application with DTP to take information sent to me by those who use PC machines. Unfortunately, I can't send them the finished product other than in printed form but that is their loss!

!PrBuffer

Provides a printer buffer of a size decided by you!

!Z88

A RISC-OS program to take information from a Z88, through the Archimedes, to a printer or a disc. It needs a special cable to attach the Z88 to the serial port. I am not able to test it.

!BasicMgr

This allows access to BASIC from the desktop.

!Dots

This produces Fractal Ferns programs.

!Jotpad

This Application is a desktop jotpad.

!Logga

Its aim is to record how long you do something over a long period of time, e.g. how many hours you use the computer each week. Pressing <select> starts the log and pressing <adjust> stops it. The file it produces is text. Use !Edit to view it.

!WrongWay

Turns all the text on screen upside down (or correct way up if it was already upside down!)

LowMem40

This module provides a screen mode (40) which only takes up 8k which is great for backing up / copying discs.

Overall

Careware Disc 7 is excellent value, particularly as those who buy it support charity. **A**

Setting up the PC Emulator

Richard Wheeler

Over Christmas, my family acquired an A420 Learning Curve (plus printer). Every now and then the family lets me delve into the machine and set things up the way I want to. These notes describe how I set up the PC emulator.

When I first saw that the Archimedes had a PC emulator I was quite excited. At work I have a PS/2 which is LANed to a laser printer. I had a vision of taking Archimedes spool files to work to make use of the quality and speed of the laser printer (and also of bringing work home for evenings and weekends). As I came to read a bit more about the PC emulator, it all seemed rather 'iffy' – and set up was not something to be done quickly. This was especially so once I realised that the emulation would deliver XT speed which is distinctly like watching coffee trees grow. With 4 Mbytes of memory available, I wanted to do something which would give some sort of turbo boost even if only through a memory resident D drive. From the various bits and pieces that I read, I decided that a large RAM disc – say 2 Mbytes out of the 4 Mbytes installed – would be the best starting point.

One afternoon, I settled down to 'do the deed' and it turned out to be remarkably simple. These notes describe what I did and the few problems I encountered.

Detailed installation steps

Step 1 was to read the two articles by Bill Mapleson and David Wilkins in Archive 4.3 which were more than helpful. In general, I will only describe differences from these articles – particularly as David describes the more complex task of amending an existing PC environment rather than the simpler task of setting up a new environment.

Step 2 was to make a copy of the PC directory (as set up on the Learning Curve) onto a floppy. I will not explain where I went wrong in detail but I did need to recover files from this later on...

Step 3 comes from Archive 4.3 p9 (where it is also called step 3). I used !Edit on the PC.!PC.GenBoot.!Config file to give answers of N to

'Always Kill Modules', 'Perform RMClear' and 'Perform RMTidy'.

Step 4 is a combination of Archive 4.3 p9 step 4 and p20. I used !Edit on PC.!PC.!Run2 to include my hard disc name for both disc partitions. For me, the line then looked as follows;

```
/<PCe$Dir>.!RunImage <PCe$Dir>  
                                .ROM  
                                adfs::Harddisc4.$PC.Drive_C  
                                adfs::HardDisc4.$PC.Drive_D
```

I originally followed the David Wilkins' suggestion at the end of page 20 and tried to use <PCe\$Dir>.Drive_C etc but this caused me too many problems. (The disc partitions are created in the PC directory and not the PC.!PC sub-directory which PCe\$Dir is pointing to. Apart from a simpler line in PC.!PC.!Run2, I could see no benefit from moving the files down a directory.) About this time I had to use the floppy disk...

Step 5 was to create a standard PC environment with a 10 Mbyte C drive and a 2 Mbyte D drive, both on the hard disc. As I was perfectly happy to create a ram disc in megabyte multiples (2 Mbyte in fact) I had no need to modify !ADFSDisk as David describes (the thought of doing which scared me silly). I created the D drive first by running !ADFSDisk and answering '2' to the size prompt. Surprisingly !ADFSDisk did not run from my Hard Disc and I had to use the PC Emulator floppy. Instead of continuing after the file had been created, I used <escape> and then re-named the Drive_C file just created, to Drive_D. Then I re-ran !ADFSDisk to create a 10 Mbyte Drive_C and this time let the process continue to set up the PC Emulator and DRDOS. Despite my prior reservations, this all worked as described in Acorn's mini manual. The install formatted both the C and D drives so I had no need to use FDISK separately to format the D drive.

At this point I had a working PC XT – at last <delete> worked like a delete key should and, to my great surprise, <print> gave a screen print straight away.

Step 6 was to use Drive_D from RAM rather the Hard Disc. David Wilkins' description of what to do, starting at the bottom of the first column of page 21 is excellent. My differences were that when I came to use !Edit on PC.IPC.!RUN I found that I had no MemAlloc relocatable module in System:Modules. Mine was in PC.!PC.GenBoot. I set the RAMFSSize to 2176k [= 2048k + 128k]. Allowing 128k overhead may well be extravagant but I wanted to minimise the chance of problems. I also found that when I poked PC.!PC.GenBoot.!Runimage it was the *numeric* keypad which had to be used (in fact exactly as David describes but not what I originally did).

Simplifying PC operation

Once I had a workable PC, the next steps were to make it just that bit more useable. Where I work, it is standard to set up a series a batch files to initiate applications and a banner which lists the available applications. All this can be set up as follows

Step 7, from the C:> prompt create a new directory as follows

```
MD \PCAMS <return>
CD \PCAMS <return>
```

Step 8, for each PC application, use Editor (if using DRDOS) or Edlin (if using MSDOS) to create within the PCAMS directory a batch file to start the application. Typically, this will be three commands. The first prevents commands being echoed to the screen, the second changes to the application directory and the third invokes the application through (as we will see below) another batch file. For example, I have IBM's Display-Write 4 wordprocessor installed, so I created the file D4.BAT – the BAT file extension indicating a batch file. This contains the commands

```
ECHO OFF
MOUSE
CD \DW4
DW4
```

The additional MOUSE command is to invoke the mouse driver so that I can use the Archimedes mouse from within DisplayWrite 4.

Step 9 is to use Editor to create a banner file (in directory PCAMS) which will list the batch files

set up. Mine is in file HELLO.DAT and looks something like

```
*****
*                                     *
*      Personal Computer Access Services      *
*      -----*
*
* D4  DisplayWrite 4
*
* F8  Frost & Sullivan Expert System Examples
*
*      Use RESET to return to an empty
*      Archimedes Desktop
*
*****
```

This shows that I have not had time to set up many PC applications yet!

In order to display the banner, the following commands are used:

```
CD \PCAMS
CLS
TYPE HELLO.DAT
```

These need to be added to the end of AUTOEXEC.BAT so the banner displays when the PC Emulator is entered. My AUTOEXEC.BAT now looks like:

```
@ECHO OFF
REM The DRDOSBEG and DRDOSEND labels
      tell the SETUP program which
REM statements it should process.
      Put any additional statements for
REM DR DOS between these two labels.
      Any other statements e.g. for
REM other operating systems, should
      be placed outside the labels.
:DRDOSBEG
PATH C:\;C:\DRDOS
APPEND C:\DRDOS
KEYB UK+
VERIFY OFF
PROMPT $P$G
CD \PCAMS
CLS
TYPE HELLO.DAT
:DRDOSEND
```

(My other change in AUTOEXEC.BAT is to include the current directory in the command line prompt. I find this invaluable when working across many directories).

Displaying the banner when each application terminates is simpler to achieve than to describe! If the application is normally started simply by run-

ning an executable program then the process is straightforward. Create the batch file invoked from the PCAMS directory (in the example above this would be C:\DW4\DW4.BAT) to invoke the application executable and then the three commands described above. However, if the application is normally started by a batch file (which may then invoke further nested batch files – as is the case with Displaywrite 4) the three commands have to be included at the end of the final batch file – a bit of searching may be required to find the correct place but it is not usually too hard. As an example

```
ECHO OFF
CLS
REM RELEASE 1.0
REM MODE LPT1:,,P
CD >C:\DW4\DW4ODIR.BAT
ECHO Insert a diskette for storing
                        documents in drive A:
PAUSE
A:
```

```
CD >C:\DW4\DW4DDIR.LST
C:
CD \DW4
DW4PG C:\DW4\PROFILE.PRF,,C:\DW4,,C
C:
CD C:\DW4
REM IF NOT EXIST DW4ODIR.BAT GOTO LABEL1
                                LABEL1
REM DW4ODIR
REM :LABEL1
CD \PCAMS
CLS
TYPE HELLO.DAT
```

What next?

There are a number of things I have yet to do with the PC emulator. (These include configuring a printer driver, making worthwhile use of the RAM disk and, if I get really adventurous, doing some PC based comms). Depending on the time I am allowed, the success I achieve and the reception this article receives, I will let you know all about my experiences. **A**

International Hangman

Ashley Bowden

Micro-Aid have produced a version of the well-known word game, hangman, aimed at pupils and students learning languages. The game is played in much the usual way although the word to be guessed can be in a chosen foreign language. There are twenty-five of these to choose from including the more exotic Malay and Chinese as well as most European languages.

The game has a number of variations. You have the option of a clue which is actually the translation of the word. So, for example, you can try to guess an English word, with its French equivalent as the clue, or vice versa. You can elect not to have the clue, although the international flavour is lost if you end up just guessing an English word without it.

There is a slightly mystifying scoring system. I could find no explanation on the instruction sheet or in the program and I ended up with a negative score after some (deliberately) bad play.

Each language has a list of word pairs stored in an !Edit file. This can be amended and a facility

exists for the user to add a new language. Files containing English synonyms and antonyms are included so the game is not restricted purely to foreign languages.

Unfortunately, only capital letters are used in the game and so there are no accents. Many language teachers I know find this aspect of computer programs rather off-putting since they wish to reinforce the correct use of accents.

The program makes little use of the Archimedes' potential. It is rather odd being presented with a MODE 7 title screen followed by a routine to choose your language using the mouse and a system of sub-menus. What is worse is that the main game screen is also in MODE 7. This is really unforgivable and it indicates clearly that the program is just a partial rewrite of the original BBC version. There are also a couple of small bugs in the code on my review copy. At a price of £10.75 +VAT the game is not attractively priced and one feels that it should perhaps have stayed with the BBC where it obviously belongs. **A**

Careware Disc N° 5

Mark Drayton

This disc is a compilation of many various Public Domain titles; some applications, demonstrations, and several games. One of the five directories on the disc contains text files concerning most of the programs on the disc. Some are detailed instructions and others simply state the version number and author. Careware 5 is available through Norwich Computer Services for £6.00.

Applications

In the 'Apps' directory reside four applications and four directories containing useful files and some 'UserData' to use with the applications.

!ChartDraw (V. 1.00) – This allows you to enter figures under a specified label which the program will then present as either piechart, linegraph or a stacked/grouped barchart. The presentation in each form is quite flexible, allowing you to select horizontal or vertical bargraphs, or hatched or solid fills for example. This application is fully RISC-OS compatible and is superbly presented, with detailed instructions. There is no facility within the program to print out a graph, although an option is provided to save the whole screen as a sprite, so it can be printed out using an art package such as !Paint. Some demonstration files are provided within the UserData directory. Note: Version 2.00 (Nov. 1990) is now available, incorporating a print facility and several other improvements. It was included on the ArchivePD 'freebie' disc last month. Perhaps someone at NCS will update the version on the Careware disc? (*'Tis done! Ed.*)

!Designer – This small program enables the user to edit/design BBC (system) fonts, which are completely 'stand alone'. Although the program is devoid of any instructions, it is very simple to use. Four BBC fonts are supplied in the UserData directory.

!KeyStrip (V. 1.00) – This is the best Keystrip generator program for the Archimedes I have yet encountered. It caters for any function key and the <print> key, plus either <ctrl> or <shift>. You can print directly from the program, which is set

up to drive an Epson FX80 compatible, although code is supplied to drive an Epson LQ800 compatible. From the same author as !ChartDraw, it is also easy to use and well presented with copious instructions, and runs from the RISC-OS desktop. Some useful demonstrations are supplied.

NewModes – Created with The Data Store's mode make utility, they provide extra big screens, in both 16 and 256 colours. The dimensions are as follows:

Mode	Text	Colours
40	156*36	16
41	156*36	256
42	92*36	16
43	92*36	256

They are selectable in the normal way and are nice to use in the Desktop.

PrintBuf – A relocatable module provides the following commands: *Buffer [<size>[k]], *NoBuffer and *Flush. It enables you to print documents seemingly instantly and continue, by acting as a support buffer to the printer. Setting this up is a little tricky but full instructions are provided.

QLUtils – Three programs are supplied, QLMod – a module which loads Sinclair QL screens in mode 9; QLreader – program which reads QL discs; QLScrConv – program which uses QLMod to convert QL screens into sprite files. Two QL screens are provided for experimentation. Only useful if you are unlucky enough to own a Sinclair QL.

!Teletext – A utility to create teletext style screens. Very easy to use and well presented. Instructions are incorporated into the program. Use !KeyStrip to print out a key strip (supplied). The function keys are utilised to change colour, and for other operations. Why an Archimedes owner would wish to use this form of presentation is beyond me, but if you did, I'm sure this would suit your needs adequately. Beware: you must reset the computer to escape the program's clutches!!

Demos

There are two demonstrations, both from Noah Professional. One displays 32,768 colours, (pretty but boring), the other incorporates a spectrum analyser, whooshing stars, music and the inevitable small scrolly text. It does a good impression of an Amiga on exit, (why?). However, I have seen much, much better.

Games

!Poker – This is a fairly accurate and detailed game, which, (to the best of my gambling knowledge), incorporates all of the known variants and rules. Quite acceptable graphics. Player-computer games are possible. NOTE: No instructions are supplied !! A lot safer than the gee-gees...

!Quartet – A desktop version of "Tetris", which involves packing falling shapes into a bin. Quite addictive and frustrating. (*Ali is addicted to it! Ed.*) It installs on the icon bar, so bringing up yet

another game is far too easy. Instructions supplied. RISC-OS only. Guaranteed to distract you from your work.

!Simon – A simulation of the once popular handheld game of the same name, designed to be a test of observation and memory. Full instructions supplied. Levels of difficulty are selectable. Good fun.

KX P1124 – This directory contains information and configuration files for Epson LQ/SQ printers, and some First Word Plus printer drivers. Not owning the said hardware, I am not able to comment on this material.

Conclusion

This disc offers a lot of varied Public Domain material and is tremendous value for money. It is well documented and packed full to the brim. Given all this and the opportunity to contribute to charity, what are you waiting for? **A**

A3000 Expansion Card Case

Tony Colombat

During the last month, the school at which I teach was the happy recipient of a Laser Direct printer and ten A3000's supplied by local business firms. The Laser Direct has a podule which needs to be fitted to the back of one of the A3000s and I was staggered to find that no cover or protection was supplied by Computer Concepts. Certainly, the printer could not be used with a bare podule sticking out the back and inquiring pupil hands all too ready to explore pcb's.

To overcome the problem I decided to order an "Expansion Card Case" from PRES and, within 36 hours of telephoning the order, the case arrived.

I had never seen a podule case before and was surprised at how well everything fitted together. The case is made of metal in the familiar cream of an A3000 and is slightly wider, though no longer, than an expansion podule. There is plenty of room above and below the podule to avoid any possibility of the pcb touching the case. At the computer end of the case is a lip which slides into the grooves under the A3000 and two screw holes

and screws that match those above the expansion interface on the A3000. Once fitted, a sturdy, though ungainly, cover for the podule is available.

The difficult bit now begins because, with the case in place, one has to try and fit the podule into the expansion interface with the cover stopping any attempts to line up the podule pins. I found the best method was to tip the computer onto its front end and lower the podule vertically down onto the interface. Once the correct position has been achieved and the podule pushed home a good fit is made. I then found the second problem, neither firms had supplied screws for fitting the podule to the expansion case. I ended up temporarily fixing the two together with nylon clips.

Summary

Anyone expanding their A3000's potential with accessories such as a scanner or laser printer which require a podule would do well to check whether they are supplied with a podule cover. If not, and they are sure that they are not going to fit further podules for a hard disc etc, they will find it worthwhile to contact PRES for their A3000 Expansion Card Case. (A3K3) at £15+VAT. **A**

Fact-File

(The numbers in *italic*
are fax numbers)

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